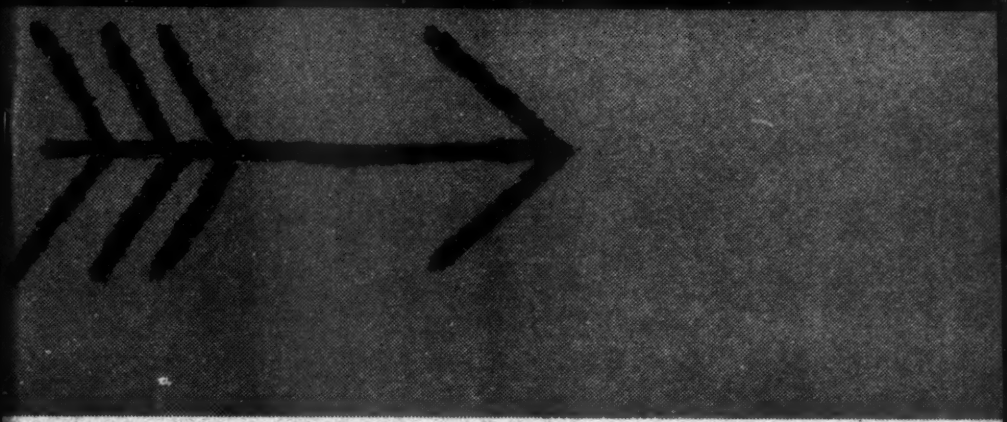
TRENDS IN EDUCATION



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Going Comprehensive
Nursery Education
Primary School Science
Children's Poetry
English Teaching
Personal Topic in CSE
Teaching Practice
Vocational Training

OCTOBER 1968

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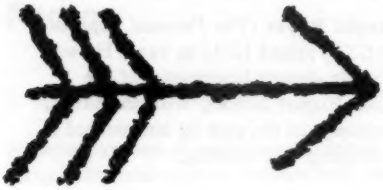

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The Editorial Advisory Board of Trends in Education *consists of senior officers of the Department and senior members of the Inspectorate. The Chief Information Officer is general editor, supported by an executive editor (Martyn Clémans) and an associate editor (David Hopkinson, HMI). Correspondence should be addressed to the executive editor.*

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A problem for heads in reorganised secondary schools—equality of opportunity and social equality.

Going Comprehensive — the Human Factor

J. W. WITHRINGTON

National systems of secondary education affect directly the lives of so many individuals that no fundamental change is likely to occur, unless it meets a strong and widely felt emotional need. This is true about a single country. When the same kind of phenomenon is repeated in one country after another the conclusion that one is in the presence of deep-seated, even primitive, human motives is irresistible. It is no wonder therefore that those who campaign actively for comprehensive education, those who merely take a passive enabling attitude, and even those who are sceptical are all apt to say with one voice, if in different tones, 'the tide is coming in'.

If the underlying feeling is deep and universal, why did we have to wait for action until now? The answer is both simple and too little understood—a comprehensive secondary system is only possible for a rich nation. Perhaps one of the most primitive motives driving us towards comprehensive education is that particular form of the feeling for equality which expresses itself as a demand for fairness. Fairness works out differently in conditions of scarcity than in conditions of plenty. It was demand for fairness which generated the 11 plus. Never were more strenuous and prolonged efforts made to equalise opportunity than in the hey-day of the grammar school/elementary school system from 1930 to 1947. If our economic well-being would, even now, only allow us to support a small minority of children in secondary education we should still be devoting great efforts to improving selection and making the administration of selection more humane.

The setting up of a comprehensive system is highly unlikely to cause this primitive sensitivity about fairness to wither away. Just the reverse, the feeling will strengthen as its satisfaction appears more attainable. Nor is there only this one simple motive at the back of the movement towards a comprehensive system. In one way or another we have been a socially divided nation for as far back as our history books can take us. And, at no time, have the large majority liked it that way—at best they have acquiesced. As the social and educational differences between the various classes of society have become smaller the closing of social divisions has come to be thought of as a realistic target. To the comprehensive schools has been given the task, not only of equalising opportunity, but also of generating a society in which social cohesion replaces social division.

Looked at purely objectively the two broad aims of fairness and social cohesion, though they may reinforce one another emotionally, do not automatically reinforce one another when we attempt to realise them

on the ground. Fairness means fairness to compete for the best prizes in life—for the most sought after jobs. It could mean fairness in a race to be different—to get ahead of and be apart from one's fellows. In some degree, it must mean this if, in fact, the world outside school is of this nature.

All the more reason, it is said, for educating people in the same kind of school, under the same roof. People brought up together are more likely to have a degree of common understanding and fellow feeling than if they are brought up in separate institutions. If a change of outlook is needed a start should be made wherever it is possible to do so, and the schools are among the easier of our institutions in which to bring about a change. In parenthesis, it is worth inserting a caveat—it is both easier and quicker to change a school system than the attitudes of mind of a whole society, and we live in a society which is in a very muddled state of mind about the meaning of equality.

Different Abilities

However the argument may range, the plain fact is that we are, as a national community, by and large, willingly set on realising, through comprehensive secondary schools a greater degree both of equality of opportunity and of social equality. And these somewhat disparate aims set to the heads their main organisational problem—how to organise so that each person may develop his own particular powers while at the same time he has enough human contact with others of quite different ability. All the complexities of ability grouping, house or social groups, all the technical problems of teaching to a wider and wider range of ability, of thinking out some kind of common core of experience in the 'humanities' curriculum, whether or when to 'set', to whom to teach which foreign languages, and so on, gather round these two objectives. Equality of opportunity for people who are different, leads to school curricula with a wide variety of choice. Wide choice means large schools. Large schools with complex organisations yield severe problems of internal communication—only to be solved both by clever organisation *and* by a willingness on the part of the staff to take the extra trouble and accept the extra discipline involved. Which brings me to enunciate another evident but much neglected truth—organisation however ingenious and however well intentioned will not prove adequate for the effective running of the nation's schools on comprehensive lines. Among other factors involved are attitudes of mind, acceptance of values, willingness of most teachers in secondary schools to face a radically different future from that which they had assumed for themselves.

For this last reason alone it is good that the change from one system to another could not be brought about suddenly. Human beings need time to adjust themselves to the loss of an old rôle, to bring themselves to the acceptance of a new rôle, and then make themselves fit to carry out the new rôle. Those authorities who have taken pains to bring their teachers along with them in their planning of their new system, by consultations, discussion groups, seminars, courses and the like, are making an important contribution towards solving the problems of going comprehensive. We have been very fortunate that there have been many such authorities. We are fortunate, too, in the patient way which so many thousands of teachers have been willing to adjust themselves.

Like everything else in education, the whole exercise is a venture. A venture into a world requiring more of people—staffs as well as pupils —than the more structured system to which many had fairly well adjusted themselves. Like every new venture, it could be impeded if not wrecked on suddenly out-dated attitudes of mind—attitudes good enough to fight with but not good enough to gather in the fruits of victory. Take, for instance, the word comprehensive itself, especially when it is used in the phrase 'fully comprehensive'. It is so warm and friendly in feeling that it is in some places a danger to realistic thought about making a workable system in an imperfect world.

It is quite clear that we are not going to attain to a state of affairs when every school has a representative cross-section both of the ability range and the range of social background in the country at large. This raises two important questions (1) What are we willing to do administratively to help the less fortunately placed schools, (2) What attitudes are teachers going to develop towards the job of manning both the less and the more fortunate schools. Neither wrong nor right attitudes are inevitable. Right attitudes have first to be regarded as important. They have then to be worked for—are they being given enough attention? It is as well to look one element in the situation which militates against 'full comprehensiveness' directly in the eye. I refer to the massive fact that the stock of the nation's houses, representing about 100 years of building, is distributed as it is. It is a far quicker operation to change a school system than a housing pattern—the two processes do not have a remotely similar natural period in which a significant change can be brought about.

Regrettable as it may be that some schools will be more comprehensive than others, I do not think it comes within the category of a tragic event. There are some who shrink from this fact of our times with an unnerving horror. When they do, they may be exhibiting the Achilles heel of the teaching profession, the almost unconscious assessment of the worth of a pupil according to his 'intelligence' and of the goodness of a school by the number of academic prizes won. The setting up of a comprehensive system implies that such attitudes are out of date.

For Distribution

It is not only comparison between schools which will provide a whole range of problems both of organisation and human attitude; comparisons between what happens to different pupils and teachers in the same school are also bound to be made. How fairly should the school's teaching force be distributed among the classes in a school? What do we mean by fairness in this respect? Does it mean that every teacher should be expected to teach throughout the whole range of ability and age in the school? Few teachers, given their experience up till now, are remotely capable of this in an all-through comprehensive school. If they are not capable of it now, will they ever become versatile enough? If you can't meet the idealists' 'fully comprehensive' demands by generating a force of 'fully comprehensive' teachers, what career structure of the teaching profession shall we be led to adopt? We should perhaps remember that no other country in the world is attempting to set up all-ability schools with as wide an age range as 11 to 18. For my own part, I think it likely that human nature itself is not so versatile as to yield many teachers who would be really effective

over all ages and abilities in a comprehensive secondary school with a seven year age range.

Let us pass on to consider the pupils. The young are realists and, left to themselves, they can become harsh realists. It does not automatically follow that to associate young people together will in fact lead to social acceptance and cohesion. What do we really mean by such phrases? One critical point at which to test the quality of our thought about this matter concerns careers information and advice. Nothing can disguise from young people, as they approach the time when large numbers will take up employment, that the destinations in life of some will be very different from that of others. Can they, nevertheless, regard themselves all in some sense, as one people? Is it likely to happen unless the school itself actively generates in its pupils the appropriate attitudes and feelings?

A comprehensive system needs for its health an ethos satisfactory to all, but we have almost nothing in our traditional experience in our school system which is broadly based enough to be taken over neat by the comprehensive schools of this country. We shall have to invent an adequate ethos—almost, so to speak, with our bare hands. The Americans are better off than we are—the making of a free people to sustain the democratic way of life still stirs the heart of a youngish nation. In Sweden the word 'democratic' is something to be reckoned with—and they appear to be a less divided society than we are. It is relatively easy for an elite to be motivated by the thought that they carry the banner of civilisation from one generation to the next—a proper pride in its time. When all join the throng we shall still need the discipline of loyalty to an ideal, and it will have to be taught. Implied in the comprehensive ideal, though not always brought to light, is a next generation rather purer in motive than the last. It will not come automatically.

These questions are not raised in any destructive frame of mind. They are simply a challenge to constructive thinking, not enough of which has been done in the sphere of values. When all the organisational skill, all the teaching techniques have been employed, there still remains the question: What view of the good life does our comprehensive school system assume? How do you ensure that it enters into the minds and hearts of enough people? How do you imbue the relatively successful and the relatively unsuccessful—and both will appear in our comprehensive schools—equally with a proper respect for themselves and for the other fellow? How do you persuade all, or enough of the rising generation, to care for the quality of life, both of the individual and the community? Of one thing I am sure, just living closely together will not be enough. Some kind of belief about the good life is necessary, sufficiently commonly held, and held with at least a modicum of passion. Neither the desire for fairness nor for social equality will prove to be more than the priming of the pump. One can hardly wait to see what the pipe-line will deliver.

Fourteen million people live in the eighty or so county boroughs of England and Wales. What do they know of their primary schools?

A Borough and its Primary Schools

In the summer of 1968 the county borough of Halifax held a primary education week. All the primary schools and most of the townspeople joined in. Halifax is both a likely and an unlikely place for this to have happened: likely because its very situation gives it a strong sense of community, unlikely because most of the primary schools are not really show places and the borough is busy enough minding its other affairs to worry about what the kids are up to.

Halifax is in a big bowl on the eastern slopes of the Pennines. In the winter the bowl fills up with mist, but in the spring the sun softens the blackened stone buildings piled into the centre of the bowl, and summer greenness spills over the brim and down the slopes from the never-distant moors. Some of the slopes are too steep to build on, and school builders need an extra cost allowance to overcome site difficulties. Near the rim of the bowl cattle graze in sight of factories, and peripheral communities within the borough boundary, retaining much of their village identity, are grouped still around what was once the village school. Further down the slopes rows of back-to-back houses, typical of Yorkshire wool towns, are still to be found but are yielding to demolition and replacement by high-level flats. Tucked into corners of the older areas are more primary schools, with a cramped bit of ashphalt for playground, but on the better favoured slopes the playground may be fringed with grass and backed by trees.

There are some new primary school buildings in Halifax, but most—as in many urban areas—bear the marks of the late nineteenth century; and for seventy years generations of Halifax people have passed through the same doors. There is little private educational provision in the borough: the maintained county and voluntary schools are *the* schools. The fact is taken for granted, and so for the most part are the schools themselves. They are an unquestioned part of the little local communities, thought of until recently by their staffs perhaps more in relation to the secondary schools they feed than as a group of schools in their own right. There is some competition to get children into the better-off ones—better-off, that is, in terms of situation or status, and not necessarily of educational attainment—but the coveted places go first to the children in the local zone and there is a general acceptance of the inevitability of the school round the corner, whatever its disadvantages may be.

So it goes on from year to year. New educational ideas find their way across the ashphalt and into the often sombre buildings. Heavy desks are slowly replaced by tables with flat tops and group teaching begins. Computational skills in mathematics, designed for nineteenth-century counting houses, give way to the practical exploration of the problems of a new age of technology. The 1933 syllabus of physical education is replaced by free movement to music as children explore the possibilities of their own bodies in space.

Outside, Halifax goes about its business—not exclusively now in textiles, but with engineering and biscuits and confectionery also providing employment. Despite some low-wage problem areas (one school provides 30 per cent free meals) the out-of-work are few and the employment of women is well above the national average. Although there is an abundance of sub-standard housing the people are fully occupied about their material affairs, and retail sales per head put Halifax up among the country's prosperous boroughs. The children can be left to the care of the schools as the mothers set off for work: the authority is blessed with an admirable school meals service, and four children in five take advantage of it, compared with three in five over the country as a whole. (A casual visit to one infants' school at midday revealed empty plates and smiling faces.)

So in the gaunt Victorian buildings the children are variously nourished, and year passes year. But every so often Halifax remembers its primary schools. Thirty-two years ago it held an elementary schools exhibition of work, and the President of the Board of Education sent a message that spoke of opening new doors 'to discover new joys and new activities and new inspirations'. After the exhibition was over school and home quietly went their separate ways again. Then the Plowden Report was published. In common with other towns up and down the country, teachers and administrators looked at the two stout volumes and asked each other what should they do about it. Clearly great goings-on were likely to be put in hand in neighbouring county boroughs and county districts. Halifax could not be left behind.

Unobserved Revolution

In fact Halifax was most unlikely to be left behind. It had a primary schools adviser who knew from first hand experience that in the cramped primary schools of the borough children were being given experiences that encouraged them to stretch, in a balanced programme of learning activities with variety enough to stimulate both intellect and emotions. He knew of the unobserved revolution that was beginning to transform the life of the schools while Halifax went about its business outside. He called a meeting of the head teachers of the primary schools and they discussed what the report had to say about home/school relations. There were further discussions and a committee of six was appointed, four head teachers and two assistants sitting with the primary schools adviser. A plan was worked out to show the parents and ratepayers everything—not just the ideal but the real, what actually happens every day in any primary school. The objective crystallised around two basic ideas: open the schools for several days on end and let the public come and see for itself what goes on there; and then spend a few more days, not just with a static exhibition, but with live classroom situations staged in the borough's big central public hall.

There was a critical moment (perhaps more than one) when the task the primary schools had set themselves seemed too big. Was there nearly enough in the quiet patient work of 300 primary school teachers to justify going on show in such a big way? Would the parents understand? Would they even care? Why not just carry on as before without all this fuss? But there is an obstinacy about the Yorkshireman when he thinks he is on to a good thing; and Halifax has had its quota of

schemes that have gone a long way. (The country's largest building society started there of course, and so did the cat's eyes we all drive by at night.) So they set up three separate committees, charged respectively with the central exhibition, the teaching demonstrations, and all other activities including publicity. Working parties began to proliferate and before long all the primary school teachers in the borough became involved. The local paper caught the infection and appointed an education correspondent who wrote articles about the objectives modern education tries to reach and the methods it uses. Halifax began to buzz.

By Christmas 1967 all the schools knew what part they had to play. They had eight weeks to get ready. Came Easter 1968 and the plan reached a climax. To one of the central schools (certainly not the most physically attractive but the most convenient) parties of pupils came for three days during the school holidays. All the schools (not just the best) were to take part in the public teaching demonstrations, so classes had to be assembled and given some opportunity to establish a working relationship with their temporary teachers. For the teaching of modern mathematics, for example, children were drawn from twenty different schools, to set about their various tasks a few weeks later and be quizzed by adults they had never seen before.

The exhibition was opened by Lady Plowden and in three days 20,000 people out of the borough's 95,000 visited the exhibition hall and saw the classes and other demonstrations. Not all the visitors were parents. Similarly in the schools themselves when their doors opened to anyone who wanted to walk in. Estimates by a number of heads were that over a half of the parents turned up with a good sprinkling of unattached visitors, some of them previous pupils at the school curious to know how things had changed. For a whole week every primary school in the borough, was busy arousing the curiosity of those who normally took their activities for granted. It was hardly likely to stop there, though what came next nobody knew as the Primary Education Week moved a little breathlessly towards its end. The teachers were perhaps using the same exploratory techniques that they were encouraging their pupils to use; and if the schools reach out to the community who knows what may happen next?

In a preface to the week's programme the chief education officer wrote: 'the gulf in the understanding of the child between teacher and parent is now causing bewilderment in many homes. The parent's own education at school was so widely different from that of his child that closer links must be forged to prevent bewilderment in many homes. This can only be achieved by constant co-operation between home and school'.

Drift of Population

Constant co-operation is no mean objective. But Halifax, for all the lack of community amenities which is said to be contributing to a slow drift of population out of the borough, has the capacity and the will to make a success of what it attempts. Somewhere around 1900 somebody had the idea, in this inland town, way above sea level, of teaching all the children to swim, and they started building swimming baths for their schools. They still do, and children grow up as adept in the water as in any seaside town. A little while ago Halifax appointed a new physical

education adviser, and children—the clumsy as well as the agile—now go voluntarily to undertake special classes in gymnastics and dance taken by the hard worked staff.

Above all, today, one is impressed by the all-round musical attainment of the schools. They start teaching the children to read music and handle instruments in the infants' schools, so it is hardly surprising that the junior schools all have first-class choirs and all the secondary schools their own orchestras. Drop in at a primary school and they will put on a half-hour programme of music for you at five minutes notice. In one school the entire backward reading class provides its own choir, and you can watch them light up at the sweet smell of success. The local education authority has spent £30,000 on musical instruments in four or five years and the schools are equipped now for a generation. A lucky generation perhaps, for all the town's alleged lack of amenities. A few years ago Mary Morris did a study for the National Council of Social Service of the activities of voluntary societies and voluntary workers in Halifax. She reported (*Social Enterprise*, 1962) that although local branches of national societies were well represented it was the independent local societies which appeared to be particularly strong in Halifax. (This is true in education: CASE and the PTA Federation seem to have made no impact, but there is a move on foot to start a Halifax Association of Parents to spread knowledge about the up-bringing of children.) Mary Morris noticed too how apt the local societies were to change and widen their scope and how new ones were continually being formed. The borough's primary education week was a variation on this same theme.

Halifax's setting makes it a self-contained community, a community that in an age of mass media must still be dependent on its own resources. (One primary school within the borough boundary has been known to be cut off by snow.) And there is something about the Yorkshire character. . . . But dotted about the country are over thirty other county boroughs with populations below 100,000. What are they doing to tell parents and ratepayers about their primary schools?

At one time pressure for more provision of nursery classes came mainly from working mothers. Now there is much wider acceptance of the benefits of this kind of early start in education.

Success Before Six?

MOLLIE CLARKE

The Plowden report pays tribute to the work of nursery and infant teachers and acknowledges the part which successful experiments in this field have played in the spread of more liberal methods throughout junior and senior departments. At the same time, it dispels complacency by drawing attention to problems related to the education of the under sixes and, in highlighting areas for improvement and research, it presents a challenge for teachers, parents, LEAs and the Government. Recommendations for the reappraisal and extension of state provision for the youngest children take account, not only of the children's basic and common needs for all-round development but also of their particular needs arising from social and cultural advantage and disadvantage. Throughout the report the education of the child is considered in relation to environmental influences and the function of the school is seen to reflect and, at times, even to direct the values and objectives of the community. There is impressive consensus of opinion on the importance of the first six years in terms of physical, emotional, social, moral and intellectual development and powerful evidence to support the view that the younger the child at the time of deprivation in any of these areas of development, the less likely he will be to catch up without help and the more difficult he will find it to respond to attempts at compensatory education at a later stage. The sections of the report which seek to improve and extend facilities for the youngest children have the general agreement of teachers, parents and LEA staff. In particular, those recommendations which attempt to make available to all children, whatever their place and date of birth, the chance of whole or part-time nursery provision, a full three year infant (or first school) course and a more flexible and gradual introduction to full time compulsory school attendance have the enthusiastic support of everyone concerned with the first stage of education.

All this is sound commonsense but a year and more after the Plowden report, the problem for LEAs is how to make any advance without the support of legislation and financial aid. Authorities which, through no fault of their own, have no nursery classes or nursery schools and therefore no tradition from which to draw a clear idea of the aims and objectives of nursery education, no first hand model of successful nursery work and no active corps of nursery trained and experienced teachers, will have the greatest difficulty in getting even the most imaginative and inexpensive scheme off the ground. Perhaps, for this reason, it seems rough justice that an LEA with disadvantages of this kind should contribute the first article on issues concerned with the youngest children.

Pre-school Provision

Many authorities will have undergone comparable vagaries in attempting to provide nursery schools and classes. In Devon, for instance, at the time of the 1945 development plan, we had two official nursery classes, ten part-time war nurseries and a number of children attending unofficial nursery classes. The plan included the provision of thirty-three new and/or adapted nursery classes and thirty-five new and/or adapted nursery schools. There were even forward looking suggestions for the establishment of separate nursery infant groups in village schools with new area schools for the 7–11 year olds. From the start it was obvious that nothing could come of these plans. The ten part-time war nurseries were closed on the ground of unsatisfactory premises and the expense of maintaining adequate buildings and sufficient staff for the rapidly increasing number of children of school age quickly put an end to any hope of establishing new nursery classes or schools. Lingering enthusiasm on the part of the LEA was effectively held in check by circulars 313 and 8/60 with the result that although we maintained our establishment of two official nursery classes from 1945 to 1968 we were unable to extend this provision in any way. On the 1st April this year both classes were taken over by the new County Borough of Torbay and now the recent financial cuts could seriously threaten our attempt to start a new nursery class under Addendum 2 to circular 8/60.

In the meantime, the demand by parents for some kind of pre-school provision continues to grow. It is no consolation to the mothers of lively four year olds to be told that 'a large expansion of nursery education' is fourth on the report's priority list. They have grown tired of waiting for the State to provide and, throughout the country, groups of mothers have taken the law into their own hands by establishing independent play groups. The numbers of play groups and the numbers of children attending them increase daily.

Nothing like this has happened since Dame schools! In 1825 Samuel Wilderspin published *Remarks on the Importance of Educating the Infant Poor from the Age of Eighteen Months to Seven Years.* In it, he says:

> There is great need for relief for parents of two to six year old children. So convinced are the poor themselves of the advantage of this kind of relief that, in numerous instances, Dames' Schools as they are called have been established in which 10, 20 or 30 infants are placed under the care of an old woman by whom they are shut up, often in a close apartment, in order to be kept out of harm's way.

The present day Dames are not old; they are young, intelligent and enthusiastic women who are anxious to provide their children with peer-group companionship and better facilities for play than the normal home can provide. The main purpose of a good play group is the welfare of the child; 'relief' for the mothers—if, indeed, it can be called relief as one of the strengths of the movement is the active participation of mothers in the management and supervision of the group—is a minor consideration. Although inspection by the health department ensures that the children are not 'shut up in a close apartment', premises ranging from one room in a private house to unprepossessing and inconvenient public halls are far from satisfactory. What, unfortunately, remains true a century and a half after this book

was written is that education during the vital pre-school years—and mounting evidence from a wide range of research projects underlines how vital these years are—is still exposed to the hazards of private enterprise. By sheer good luck and on the strength of enthusiastic and devoted play group leaders, many of the play groups which survive are doing a splendid job. But the more the leaders know about what they are doing and why they are doing it, the greater is their need for professional advice, financial aid and better premises. LEAs join with the health departments in arranging conferences and short courses, and replies to a recent questionnaire to schools show that head teachers take a benevolent interest in local play groups. Many added comments of this kind:

> Even one morning a week has proved its value, socially, when children start school.'
> 'Head's own daughter attends play group and cries when she cannot go. Premises well equipped and children happy. Children who attend are better adjusted socially than others: a great benefit.'
> 'Advice given by infants' teacher: mothers have visited Infants' class for discussion and observation.'
> 'Infants' teacher is a member of play group committee.'
> 'Well run by volunteers: assisted by girls from local secondary school.'

Head teachers of rural schools are particularly interested in this development because they believe that efficient groups of this kind can help to compensate for the social and linguistic deprivations of children living in remote areas. There has also been an encouraging response from heads of secondary schools who are anxious to include first-hand observation of children in their home economics courses.

Entry to School

Each year about five thousand young children enter our schools and none has had the benefit of local authority nursery education. They find their way on foot, in cars and by school bus along the coasts, river valleys, moorland tracks, main roads and narrow lanes in daylight, in darkness and in all kinds of weather. The pattern of compulsory attendance from 9 a.m. to 4 p.m. has not changed since their great great grandparents went to school. Many head teachers will have made arrangements for the children and their mothers to spend some time in the school during the preceding term. These children are fortunate: they will not be entirely unfamiliar with the school environment, the staff and the kinds of things that are likely to happen. But no preparation however enlightened can adequately equip children to deal with the long day away from home, the sudden and painful separation from mother and the bewildering experience of having to share adult care and attention with a large number of strange children. Staggered entry over a short period enables the teacher to give individual attention to new entrants, but this is no real solution to the problem.

Opportunities for these children are, from the outset, unequal. Some children, if parents wish and space permits, may enter school during the term in which they become five. Others will wait until the term following their fifth birthday. Those children whose birthdays occur during the autumn term will have two (or three if they are admitted during the term in which they become five) terms longer in the infant department than those children whose birthdays fall during the summer

term. It is possible that there are long-term disadvantages for these summer born children: 'There is evidence both from our witnesses and research that children born in the summer, who are younger and have a shorter time in school than others before they are promoted, tend to be placed in the 'C' stream of those junior schools which are organised in this way'. (Plowden report para. 347). Although our schools are at present staffed on summer term numbers, the children who enter during the summer term often encounter overcrowded classes.

Physical conditions in schools vary considerably and some offer greater opportunities than others. They range from small two-teacher schools in nineteenth century buildings where facilities for up to date activities have to be improvised and contrived, to large, purpose-built well equipped schools with good outdoor facilities and teams of teachers who can offer a wide variety of interests and abilities. A minority of children in this authority enter separate infant schools where they usually have the advantage of an infant-trained headmistress and a system appropriate to the needs of the age group. The greatest number enter all-age infant classes in two, three and four class primary schools. These children will enjoy the benefits of natural vertical grouping and some will have the added experience of a measure of co-operative teaching with opportunities for working with junior children in the shared practical and quiet areas. The rest are admitted to infant departments of larger schools where conditions may be overcrowded and where special arrangements for the grouping of children have to be made if termly or bi-termly promotions are to be avoided.

But inequality of opportunity goes further back than this. Education starts at birth and not at school entry. For these children, experience of human relationships, of language, of books and play material, of daily routine and of right and wrong has been shaped by their lives in council houses, granite farms, cob cottages, caravans, mini-bungalows, guest houses and minor mansions and they already bear the marks of socio-economic advantage and disadvantage. The small number of children who have been fortunate enough to attend an efficient independent play group will be those whose parents appreciate the benefits of such experience and who can, at the same time, afford to pay for the privilege. Unfortunately many of the children who do not get this kind of experience are the very ones who need it most and it is a matter of concern to many teachers that, in giving these children an additional handicap, the gap between the 'haves and the have nots', is widening even before school entry.

The challenge for the teacher who receives the new entrants is to sort out these inequalities of opportunity as best she can and to provide a child-centred (but not child-directed) environment where all children, whatever their physical, emotional, social and intellectual needs may feel at ease. She sets out to achieve this partly by establishing the special relationship which usually exists between a reception class teacher and her children and partly by the provision of a wide range of suitable materials, equipment and books. These will probably be grouped in attractively arranged bays so that there is a clearly defined area for each kind of activity. The daily programme is flexible and arranged to suit the needs of the children. There will be times when they come to-

gether in small or large groups to share information and to listen to stories, poems or music. For the greater part of the day they will be free to select their own materials and to use them, within reason, as they will.

But if the teacher's responsibility ended here she might deserve to be described by the cognitive enthusiasts as one of the 'old style child development people'. In fact, good infant teachers have a fairly clear picture of the pattern of education they are trying to achieve and of the learning structures within it. Without making too much fuss about it, they make sure that well-endowed children meet the right kind of challenge and that the less fortunate ones have a chance of catching up on learning situations missed during the pre-school years. In this respect, and in helping children to form basic concepts, they regard the development of language as one of the most important aspects of their work. By skilful planning and unobtrusive teaching, they help children to think logically, to act independently, to persevere and concentrate, to develop good personal relationships and to make progress in the basic skills. The environment they take pains to enrich will enable children to make valuable discoveries which will lay firm foundations for later work in many subjects. And all this is often achieved by one adult on behalf of forty children in inconvenient buildings with poor outdoor facilities and without recourse to corporal punishment.

What can be done to improve conditions for these children and these teachers?

The Way Forward

The Plowden committee received convincing evidence from authoritative sources on the importance of the years before six. If this is to be taken seriously, everyone in any way concerned with the education of young children should continually examine ways and means of implementing some of their suggestions, particularly those concerning:

(i) The establishment of nursery groups and centres.
(ii) The introduction of 'a three year course in the first school with one annual intake in September at a median age of five years six months'.
(iii) The possibility of an emergency plan which offers a twice-yearly entry to full-time education at median ages of five years three months and five years five months.
(iv) LEA assistance for non-profit making independent play groups.*

It is generally agreed that there is no immediate hope of establishing nursery groups and centres because of insufficient money, lack of suitable accommodation and shortage of nursery trained teachers. It would also be impossible, in an authority such as this, to find the required number of nursery trained assistants and local training schemes would have to be started.

Plans for delayed entry and a three-year infant or first school course depend on nation-wide nursery provision, transfer to secondary school at the age of twelve and legislation to change the age for compulsory full time schooling. The emergency plan, which recognises the impossibility of implementing the first two suggestions at the present

*_Children and their Primary Schools_ (Plowden report) paras. 343;4 07(i)-(vi) 399; and 343(xi).

time, is an attractive one in that it appears to offer, in existing conditions, the chance of gradual entry, part-time attendance with easier employment of part-time teachers and a measure of nursery experience for four year olds. The problems here for the LEA would be difficulties in connection with school transport, the need for training courses in nursery education for infant teachers, the provision of trained aides or nursery assistants and last, but not least, the fact that part-time attendance of five to six year olds would be unlikely to release enough teachers to staff the groups of four to five year old children. Help for the play groups will depend on money and resources available and, to some extent, on legislation for inspection by LEAs.

It seems, therefore, fairly certain that there will be no swift and easy solution to all this and that any immediate advance will depend on LEA initiative. Our challenge is to find some way of making what progress we can at this present time.

We might, for instance, consider the suggestions by some well-known economists for the setting up of nursery units by LEAs on a fee paying basis with social security compensation for those who cannot afford the fee. This makes good sense and might provide a useful link between efficient play groups and the LEA.

On the other hand, we might go to the root of the matter and examine ways of encouraging parents and teachers, separately and jointly, to accept greater responsibility for the intellectual and social development of pre-school children. If strong links could be formed between young parents and the local school, the child's intellectual welfare might be safeguarded in much the same way as established links with the child welfare clinic ensure his physical well being. At the same time, a partnership and understanding would develop between parents of pre-school children and teachers in local schools which children would find infinitely reassuring at the time of school entry. This kind of relationship would encourage a mother 'to remain in the classroom until her child has settled down' and the next logical step forward might well be the occasional involvement of a rota of mothers —and sometimes fathers—in selected class activities. Only in this sort of way can we act on the suggestion which, for the youngest children, may well be one of the most important in the report:

> Teachers are linked to parents by the children for whom they are responsible. The triangle should be completed and a more direct relationship established between teachers and parents. They should be partners in more than name; their responsibilities become joint instead of several.*

**Children and their Primary Schools* (Plowden report) para. 80.

What is the place of science in the primary school? With help from teachers, the Oxford Institute of Education looked for some answers, and the Bristol Institute evaluated the results.

Young Children and Science*

There are still doubts in the minds of many teachers as to the proper place of science in the primary school. Part of the trouble stems from the memory they have of the science in their own school careers. This was a subject with a special mystique of its own and one they found difficult. It required special rooms and facilities and used a jargon which they never felt they fully understood.

Primary teachers are also aware that there are pressures from some secondary schools to inhibit their undertaking to teach science. Some secondary teachers will say that science is better left to the secondary stage; that it will merely be badly taught in the primary school and that the children will have to unlearn much of what they have been taught when they start their science courses in secondary school.

The stages of intellectual development described by Piaget, and confirmed broadly by others who have worked in this field, suggest that children cannot reason about abstract ideas until, on average, they have entered secondary schools. While it is important that we learn as much as possible about the learning processes of young children, in science and all other fields, it may be argued that any real understanding of science at the primary stage is unlikely because the child is unable to handle abstract ideas and to form the concepts involved. If science, on this view, is undertaken with young children, it will have to be so drastically over-simplified as to be valueless as a basis for later studies and the work done will have to be unlearned and a new foundation laid. Opposed to this is the view that children can recognise the common elements in situations in their own experience—a number is an abstraction recognised as a common element in, say, 12 apples, a dozen eggs, 12 o'cock and a foot ruler—and that the child at the primary stage may be able to make abstractions about the scientific experiences which he has, and to form scientific concepts in a simple, unsophisticated form. If it is possible to discover which scientific concepts children can form and to identify the experiences which are fruitful in helping children to form concepts, this may be a valuable pointer to the work in science which it is profitable for children to do in primary school, and this work might come to be seen as an appropriate foundation for the science schemes to be followed later in secondary school. Susan Isaacs, in her book *Intellectual Growth in Young Children*, wrote that the thought processes of young children can be quite complicated when they are concerned with something

*This article is based on a report to the Department of Education and Science entitled, *An Enquiry into the Formation of Scientific Concepts in Children 5-13*, by the Oxford Institute of Education, and on the conclusions of the evaluation report by the Bristol Institute of Education.

that interests them deeply and that they do not always think in the same way, nor do they always conform to the modes of thought suggested by Piaget.

The Project

The first stage in the research was to find out what was already being done by teachers in the way of developing scientific concepts with primary school children. Teachers were asked in a questionnaire which scientific concepts they thought children might have formed as a result of their science lessons and the answers suggested that the term 'scientific concept' meant little to them. Apart from the difficulty introduced by this unfamiliar term, the returns gave little indication that the teachers were aware of what ideas or principles they were trying to bring to the understanding of their children, or that they were doing more than following the lines of development of a topic as seemed sensible to them or as it was suggested in a science book. The topics, too, appeared to be quite distinct and self-contained and it seemed that a child might do a piece of work on magnets, and later a project on electric circuits, without fully realising that he had been looking at the two sides of the same coin. Science topics, particularly if they are followed as experimental schemes, have a danger of being divorced from the other work of the class and they may inhibit the interchange of ideas.

Perhaps we ought to look at what is meant by a concept. Dr K. Lovell defines it as the ability of a person to discriminate or differentiate between the properties of the objects or events before him and to generalise his findings in respect of any common feature he may find.[1] The use of language is clearly important in the process of concept-formation and the words the children first learn are thought by adults to categorise objects in the most useful way for everyday life. In some cases the child uses words denoting a large category first before he uses words to denote members of that class, whereas in others he uses words to denote particular objects first and later learns the words which embrace the whole class. Mr R. Brown ('How Shall a Thing be Called?' *Psychological Review* 65 pp 14-21), argues that the child first acquires the concepts which adults think are of maximum value to him and also that, in using the word 'daddy' to denote all men, has to employ large categories at first.

Aims of the Research

It was felt by the research team that the research project into the formation of scientific concepts should not be just an opportunity to devise a new scheme for primary school science, but it should be angled to produce something of value for primary schools. The team would look into the whole field of science and examine the large, all-embracing ideas which run through it. If it is agreed that children sometimes think in terms of larger categories first and then think in terms of particular examples inside the group, there is a real argument for identifying the important global concepts of science and attempting to find out how the children form these—or if they can form them at the primary school stage. Nevertheless, at the school level, it was recognised that the child's experience must be structured in order that his understanding is gradually refined and deepened. If these concepts

[1]K. Lovell, *The Growth of Basic Mathematical Concepts in Children* (London' 1961).

could be identified, it was felt that they should be investigated in the situation of the primary teacher with his class. In order to cover a significant range and number of children and teachers, it was decided that the concepts should be identified first; an attempt should be made to communicate these ideas to primary school teachers, many of whom would have had little if any scientific training; and then the teachers asked how these ideas could be illuminated by the experiences which children have in their schools.

It was recognised that the teacher could form only a subjective opinion of the understanding of his children and of their formation of a particular concept. The combined findings of many teachers, supported by the work the children had done, would be valuable but still only subjective, and it was recognised that methods would have to be explored for evaluating quantitively the formation of science concepts with a view to testing some of the children in the schools collaborating in the research. The first hurdle was the identification of the important concepts of science and the framing of a conceptual picture of science which would be broadly acceptable to a large number of scientists. The second hurdle was the communication of the scientific ideas in the face of the diffidence of teachers.

Identification of Concepts

Discussions were undertaken with scientists in universities, colleges of education, schools and industry and a variety of suggestions were received. Some scientists were not happy to attempt an answer to what seemed to them an unusual and indefinite question. They were naturally aware that the research was to be concerned with primary school children and their own ideas about the understanding of young children frequently affected their answers. It was intended that the scientists should give their ideas on the important concepts of science purely from the stand-point of themselves as physicists or chemists or biologists, but frequently their knowledge of their own children's development, for this was the only experience on which they could call, influenced their suggestions. The research team was conscious all along of a dilemma. Obviously it was essential to arrive at a conceptual picture of science which was broadly acceptable to scientists, but this needed also to be expressed in terms which could be understood by teachers.

Discussion of biological concepts particularly, turned up some different opinions. To the non-scientist the differences between living and non-living things are so obvious—discounting awkward groups like the viruses which he would be unlikely to consider—that the division between physical and biological sciences is a natural corollary. The research team felt that this division should be reflected in the conceptual picture of science. Some biologists, however, did not accept that there were distinctly biological concepts. One view was that everything distinctive of living organisms could be understood under the concepts energy and structure.

Eventually, it became clear that some ideas were accepted as being fundamental. These were linked together in a brief paragraph called, for purposes of reference, *A Description of the Universe*. It was agreed that the ideas embodied in this should become the subject matter of the research.

One element it was felt to be essential to include in any statement about

science was that of chance and uncertainty. Children can very easily grow up to think of science as something certain and predictable, for the view of science as something which knows all the answers is a common one held by the person who does not profess to understand science. In everyday life so many things are accepted as uncertain, others as more or less probable, that it seems only sensible to bring children to a realisation that the scientist is doing the best he can with an uncertain world; that the laws he discovers are not certain but are frequently statistical laws—in Professor Porter's phrase 'Laws of Disorder'.

From this thinking it became clear that basic scientific ideas fall into four groups under the headings energy, structure, chance and life. Life was retained as a separate entity because it was thought it did have its own system of ideas which were distinct from those of the physical sciences. No claim was made for this as a definitive list of concepts and a standing invitation was given to scientists to write their own 'descriptions of the universe'.

A Description of the Universe

The universe is the product of the interaction of energy and matter. In circumstances not yet understood, the interaction of energy and matter produces life, which has characteristics not found in non-living matter. The non-living universe is the necessary result of very many chance occurrences and tends to 'run down' to an equilibrium. The universe of living things tends to differentiate into specialised forms in temporary equilibrium with each other and with the non-living universe. Matter has a discrete particle structure. The characteristics of a substance are determined by its particular structure. A substance may undergo physical change, including change of state, while remaining intrinsically the same substance. Substances are either elements or compounds. They can undergo chemical change to form different substances. Such changes involve a rearrangement of particles with accompanying energy changes. Energy occurs in interconvertible forms. The transmission of energy through space or through a suitable substance creates a field and may often conveniently be described in terms of wave motion.

The ideas in this description of the universe may be set out in four concept groups.

Energy	*Structure*
Work	Relationship
Field	Force and forces in equilibrium
Wave	Particle structure of matter and cell structure
Reflection	
Refraction	Chemical change: element/compound; atom/molecule
Absorption	
Interconvertibility	Particles in motion and pressure
Equilibrium	Change of state

Life	*Chance*
Metabolism	Uncertainty and probability
Diversity	Disorder and randomness
Interdependence	Pattern
Adaptation	
Inheritance	

Organisation of the Research

It was felt to be essential to work through a large number of teachers with their classes, and to plan the programme of research in two main stages—a 'pilot stage' and an 'operational' stage. The concepts of energy, structure, chance and life were explored with different groups of teachers in successive terms. A small group of teachers attended a weekend course on energy. In this course, the science was presented to them at an adult level and the aim of the course was to give them an understanding of what is meant by energy. Some tentative suggestions were made as to work which might be attempted in school, but the attitude taken was that these teachers were the experts in primary teaching and it was they who must decide what was relevant to their classes. The remainder of the term was to be devoted to thinking their way around energy; they were asked to have energy in mind for their teaching in the spring term and during both the preparation and the teaching terms the research team would visit the schools and be available to help in any way possible. After the teaching term the teachers were asked to send in a report, preferably accompanied by children's work, and a preliminary attempt would be made at exploring techniques of objective assessment of concept-formation.

Courses on structure, chance and life, were mounted in succeeding terms with different groups of teachers in the Oxford Institute of Education region, and their terms of preparation, teaching and reporting followed successively. News of these courses and of the whole research project spread and as a result invitations were received from other institutes of education and LEAs to mount courses in their own areas. These invitations were accepted as they gave the team the opportunity to try different methods of presentation of the science and they offered the possibility of securing the co-operation of teachers in other parts of the country in the research project.

The 'Pilot' Stage of the Project

The four courses mounted in the Oxford region were regarded as trial runs and the experience gained in discussion with the teachers who attended these courses was invaluable in suggesting ways of improving the presentation of science. In these courses, too, attempts were made at suggesting possible ways in which the scientific ideas might be related to the work going on normally in class. The reactions of the teachers attending these courses varied widely, some feeling that the concepts provided them with a useful framework for their guidance of their children's activity and others feeling that this was foreign to their method of teaching and could not be reconciled with it. The experiences of these teachers in school afterwards were invaluable in letting the team know which of the teaching suggestions were worth pursuing and which did not work and should be dropped.

If the experience of the teachers on this course was to be of any relevance to others schools, it was essential that they should not be a handpicked group keenly interested in science and already teaching science with their classes. On the other hand, it would be equally inappropriate to insist that the teachers had no interest in science. It was made clear that knowledge of science was to be regarded neither as an essential condition nor a handicap as far as the teachers were concerned. In this first stage then, a small group of teachers was invited

to collaborate in the research, as far as possible representative of the body of primary teachers, and drawn from a variety of types of primary schools.

No prior knowledge of science was assumed by the research team, but it became apparent from discussions with teachers involved in the pilot stage, and other teachers over a period, that they were in fact assuming unwittingly a knowledge of science which the teachers did not possess. This illustrates the difficulty that individuals who have been trained in science and pursued scientific activities have in appreciating the standpoint of people whose training and careers have been orientated towards the humanities and away from the sciences.

Some Second Thoughts

The end of the academic year 1964-65 seems a suitable point at which to review the impressions which had been formed as a result of giving a number of courses to teachers, listening to their reactions and assessing some of the work which had been done in schools. By the summer of 1965, the pilot courses on energy, structure and chance had been given in Oxford, and the life course was in preparation. Repeats of courses had been given in other centres and the whole range of ideas had been explored for the first time at Hereford. Teachers' reports on energy and structure had been received and the work attempted and opinions formed by the teachers were known in some detail. The group of teachers attempting to introduce ideas of chance were visited in the summer term and their reactions were known from discussions during the course and from visits to schools afterwards.

It was essential to take a long, hard look at the concepts in the light of previous experience. One of the first clear pointers to be given by the teachers was their preference for the large concept, energy, structure, chance and life; although chance was unpopular with some, this was by no means universal, but numerous teachers felt that it did not arise as naturally as the others. However confused one may become in tackling the philosophical questions: What do we *mean* by energy? What do we *mean* by life? there was little doubt that they meant something definite to the teachers and they were accepted by children as the key to the multitude of things going on around them. About some of the sub-concepts the teachers were much less certain and, as a result, misconceptions were more common.

Armed with tentative conclusions from the pilot stage of the research, the time had come at the beginning of the academic year 1965-66 to review the energy, structure, chance and life courses, to make amendments on the basis of feedback from teachers and to present the science in terms of an integrated framework of concepts.

During the second year of the project further courses were given to groups of teachers who had already become involved in the research and these, for the sake of completeness, follow more closely the lines of the pilot courses, though cross-references were constantly made.

In planning the presentation of the science on the operational phase, it was not intended to devise one integrated course and to repeat it in exactly the same form several times. It was hoped to ring the changes on a basic structure and to see if any significant difference emerged from the different methods of presentation.

Analysis of Results

It was suggested that each teacher should fill in an index card for each approach to a concept and accompany it with an account of the work at greater length and examples of children's work. Records in card form would be most valuable for storage and retrieval if the number of teachers should reach considerable proportions, as seemed likely from the interest shown in many quarters.

Nevertheless, many teachers found it irksome and difficult to complete the cards and preferred simply to write out their accounts, often at considerable length. In addition, two of the categories—those of upper, middle or lower stream, boys, girls or mixed—were inappropriate since, in most instances, classes were unstreamed and mixed, and therefore there was no possibility of investigating concept formation in the differing conditions of schools organised in distinct ways. Further, some teachers were worried by the measurement of an assessment on a 5-point scale, A–E, under the heading 'Success Code', and in reviewing the form of recording the items to be completed was simplified and less emphasis laid on the five-point assessment. Examples of written assessments are given below. These are just four from among several hundred in the original research report, which were organised under concepts and age-groups.

Mrs E. Prytherch — No. of children — 40
Age range — 9–10

From experiments carried out by the children they were able to discover that sound travels faster through solids than through liquids or gases. One boy asked why, during a thunderstorm, you can see the lightning before hearing the thunder. This led to a discussion about light travelling faster than sound and why we can see things before the sound reaches us. The children were able to give many examples of this within their own experience. Some of the children wanted to know why some sounds were low and some high, and a discussion on pitch and frequency followed. The children went out into the playground and carried out an experiment with a bicycle wheel and a piece of cardboard. First the piece of card was held lightly against the tread of the tyre and the wheel was turned slowly. After this the wheel was turned faster. From this they were able to see that when the wheel was rotated slowly the few vibrations produced a low-pitched sound, but when the speed or number of vibrations was increased the pitch of the sound became higher.

Mrs A. J. Smith — No. of children — 39
Age range — 6 years

This work on magnets was done some weeks ago and the other day when we had a few spare minutes on hand I questioned the class on what we had done and discussed. There was an immediate and interested response; indeed we were back in space in no time. We also, within a very short time had an accidental spilling of pins which required a magnet to help in the picking up. Most of the children were interested in our work on magnetism and some of the children very interested indeed. I was surprised at the knowledge these 6-year olds already had:

1. that magnets attract iron and steel
2. that the ends of a magnet are called poles (north and south)
3. the word gravity
4. the idea of the field of gravity.

Miss A. Stephens — No. of children — 35
Age range — 4½–5½

Susan repeatedly put beads in her mouth despite my warnings not to do so. I therefore explained the danger to the class as a whole. Nigel rather foiled my attempts to make the children conscious of the danger by saying, 'But it's all right, Miss Stephens, the doctor's got a special magnet for getting things out of your tummy'. On further enquiry I learnt that he meant a stethoscope.

Mrs L. Thomas — No. of children — 37
Age range — 6½–7½

Air—What is air? Margaret: It's nothing.
Peter: It's all round the world.
Michael: Sort of oxygen stuff.

We began talking about air after morning milk. I asked the children if they had anything left in their milk bottles. As there was no waste, some said 'straws' and other said that the bottles were empty. When I asked those who had straws in their bottles to take them out and think again, a few hands went up and I had the answer I wanted—Air. We talked about air—where was the air? The children said everywhere, all round us—in all the places we had been calling empty. Was there any air inside us? Over half the class said yes, but the rest said no! We then blew on our hands to prove there was air inside us.

It is of course not possible to draw any firm conclusion from assessments of this kind except that teachers have preference for particular concepts in terms of their relevance to the understanding of the children and to the work they are doing.

When an analysis was made of the variety of activities that teachers were engaged in at the operational (final year) stage of the project, it immediately became obvious that some concepts—for instance, absorption, equilibrium and disorder—are difficult to put over to any primary age group; that some topics are moderately successful—refraction, absorption; and that the discussion approach, highly favoured by teachers, was a dimension of the other forms of activity.

Conclusion

The research was seen as a positive attempt to help the primary teacher, rather than an academic exercise. The results of this work convinced the team that it is not enough for the teacher to decide what to teach and then to do it. It is necessary to make him aware that what appears to be transparently clear and obvious may strike the child as mysterious if not alarming. Awareness of the child's limitations in thinking and conceptualising is essential in the teaching of science and it is necessary to find out when a child is reaching the stage of readiness for a particular range of concepts and not assume, as we have done for so long in science, that it is best to play safe and leave it all to a later stage, perhaps in the secondary school. To do that is to avoid running any risk of anticipating a stage of the child's development, but at the cost of wasting the wide possibilities of the child's primary school career, with all its excitement, enthusiasm and the genuine joy of inquiry and discovery.

But to make suggestions of possible approaches to science in the primary school is only half a job; without a conscious attempt to assess the success or failure of such approaches in terms of the under-

standing of the children all efforts are valueless. The evaluation of the work in schools was discussed with teachers at all stages and various levels of assessment were envisaged. At the first level, each teacher was able to say how fruitful or otherwise a particular topic or line of inquiry had been; and he is the best judge. Much as their assessments were valued, there were some instances when it was felt teachers were being too disparaging and non-committal. One teacher for instance, using the five-point scale, gave a low rating to a piece of work with her infants which concerned the structure of a tent. The children made a model out of paper and the teacher was trying to show that the central pole was necessary, as it would be for an actual tent. But the paper she used was stiff and the tent stood up without the central pole; this was not a failure, even though she had not showed what she set out to do—it was a neat demonstration of the properties of a material.

Even without any precise measure of the understanding of the concepts by the children, the numbers of teachers who recognised particular concepts in their children's activities was of some significance. All through the research it was stressed that the concepts did not represent a scheme of topics to be worked through. Work arising out of particular concepts should only be done where it was relevant to the things the children wanted to do. When a concept such as equilibrium figures in only a tiny proportion of reports of work, it was taken to be an idea of limited usefulness at that stage. There could be various reasons for this, a notable one being that the teacher had not himself made sense of the idea and therefore could not apply it in everyday situations. Where failure occurred consistently, it seemed sensible to assume that this was a concept which did not hold much for the children of this age range on the basis of their experience at home and school.

An evaluation of the operational stage of the project was carried out by the Research Unit of the University of Bristol Institute of Education. Over a period of a year the performances of four groups of children were compared; two of these were experimental groups from the Oxford and Doncaster areas, one was a control group being taught no science and the other was a control group whose science was guided by the Nuffield Junior Science Project (schools from a Phase II area). Group objective tests took the form of problems presented by means of an 8mm film-sequence and responses were recorded in an answer booklet. About 1,500 children between the ages of 7 and 11 were in all tested, the items being devised to test the objective of the Oxford Project. It was found that for the concepts energy, structure and chance, the Oxford group was superior and the Doncaster group was superior for the energy and chance concepts. These very general conclusions do not, however, apply equally to all sub-groups: there were important differences according to age and sex.

One might conclude that the Oxford project was successful in achieving some of its objectives.

Fear is poetry, hope is poetry, love is poetry,
hatred is poetry; contempt, jealousy, remorse,
admiration, wonder, pity, despair or madness,
are all poetry.

William Hazlitt.

Children's Poetry

LEONARD CLARK

This article is concerned with the poetry which children write and not with the poetry which they read, or which is read to them. It is about poetry by, and not for, children. They have, of course, always written poetry, at home or in school. They have written it, too, for a variety of reasons, as volunteers and without prompting, because they have been in an atmosphere congenial for poetry and its composition. And sometimes they have written it as a form of personal protest or, with magazine publication in view, or for competitions and festivals. Fifty years ago, for instance, there were schools, mainly preparatory and grammar, where a great deal of poetry was being written, where the writing of verses was considered to be not only a valuable exercise in the use of language but also a pleasant accomplishment. What characterised most of these poems and verses was that they were normally traditional in character and form, owing a great deal to hymns, ballads and songs. They were generally written to a strict pattern. The ability to write correct sonnets, ballades, and triolets was ranked very high. These compositions, perhaps, relying more upon the disciplines of rhyme and metre than upon significant content were beyond the powers of all but the most gifted children. This being so, there was no widespread writing of poetry by children and not a great deal of it taking place in what were, then, the elementary schools. What poetry did exist (and some of it was of a high order) was extremely difficult to get hold of by those who wished to write or talk about it in educational terms. One thinks of the interesting experimental work that was being done by Caldwell Cook at the Perse School, Gerald Dowse at Liverpool Collegiate School, and Guy Pocock at the Royal Naval College, Dartmouth. There was, too, the pioneering work of Greening Lamborn, the head master of the East Oxford School, who was able to write in his book, *Expression in Speech and Writing* (Oxford, 1922) 'I believe that rhythmic language, which we call verse, is a more natural medium than prose at the stage of school life'. And again, in his book *The Rudiments of Criticism* (Oxford, 1917) 'Mr Caldwell Cook . . . got much better poetry from the Perse schoolboys than he he could get from our children; but that is not because any one social class has a monopoly of the poetic instinct, but because some children have less chance than others to develop it.'

The writing of poetry by children was, in fact, regarded as something of a phenomen. Praise was given to those who could produce rhymes and metres that were true to the ear. Correct scansion seemed to matter most of all. Poetry, and other forms of 'creative' writing as we know them in schools today, were not unknown but they were

simply not practised on any wide scale. The influences of Whitman, D. H. Lawrence, the ancient Chinese poets, 'pop' and folksongs, and all the writers of 'free verse', together with the psychological and philosophical beliefs of Freud, Jung, and, later on, of Herbert Read, had yet to spread to the schools. It was, perhaps, the freer painting, too, that helped to lead the way some thirty or forty years ago.

But there were hints of what was to come in the official educational documents of the time. The famous Newbolt Report of 1919, *The Teaching of English in England*, said, 'Some of our witnesses set great store by the composition of original verse as an aid in the study of English composition and literature. Where boys and girls are ready to write in verse, nothing but good can come of their spontaneous efforts. It is clear, too, that some teachers can best impart the sense of form and of the value of words by this method. But verse-writing can only be a special tool in the hands of a limited number of teachers, and the danger is great that principles of prosody, only half understood, or perhaps entirely erroneous, may be enforced in such a manner as to reduce the lesson to a mere mechanical drill.' *The Education of the Adolescent*, published in 1926, had this to say, 'Students should be encouraged to write exercises in verse. This will improve their vocabulary, enable them to appreciate the technical qualities of verse composition, and may also be a great enjoyment in itself.' Oddly enough, *The Primary School* report of 1931, an otherwise forward-looking document, had nothing at all to say about children writing their own poetry but only a few remarks about the study of poetry and the keeping of personal poetry anthologies as a transcription exercise. By 1954, when *Language, Some Suggestions for Teachers of English and Others* appeared, the position had changed considerably. This contained the statement, 'Let the children's own poetry be free and spontaneous, at least until the age when they are ready to discipline themselves.'

But it is only in the past ten years that there has been the remarkable increase in the writing of poetry by children, so much so that many now take it for granted, and do not question either its purpose or significance as part of the normal growth of children. There is, at present, so much of it being written by children of all ages and abilities that poetry has become something of a phenomenon of our times. It has received much publicity both in the press and in broadcasts, whole books of children's poetry have been published, and several books about children's poetry, there have been innumerable poetry competitions and festivals for children at national and local level, and countless schools issue their own poetry magazines. But it is not the writing by the children which is phenomenal (only in so far as many children have astonished themselves and their elders by the beauty and skill of their efforts) but the sheer amount of it and its rapid growth as a school activity.

Undoubtedly, many children write poetry, as Michael Baldwin pointed out in his lively introduction to *Poems by Children*, 1950/1961, published in 1962, because they are prompted to do so by their teachers and parents, and 'rely upon them for its transmission as well.' Indeed there is some danger at the present time that this form of written expression is becoming something of a fashionable cult, as stereotyped and set in its contemporary way as the more formal verses of fifty years ago. Poetry writing by children is 'in'. Not that there has

been any revival of what once was but only a continuation, development and change of direction, coupled with the realisation that far more children are capable of writing poetry than was once thought to be the case.

While there are many teachers who believe firmly in children's expressive powers, and who freely provide the incentives, encouragement and opportunities for them to be used and developed, there must also be some who feel that *all* the children for whom they are responsible must, at all costs, attempt to write poetry. This is misguided enthusiasm for what is, after all said and done, something of a private venture. The issues are being forced, the operation overdirected, the adult influences and practical help not always producing the happiest results.

What it is always necessary to remember is that the creative impulse is something of a mystery. Children, like all artists, have something of moment to say, for their nature is to explore and, although they may not be consciously aware of what they are doing, to discover truth or, at least, some of the evidences of truth. And to do so children need what can only be described as the freedom of the spirit, what Byron called the 'Eternal Spirit of the chainless Mind.'

It will always remain true that the essence of all children's writing will lie in its spontaneity and naturalness. It is an uninhibited way of writing, following a way of experiencing through feeling and the senses. The characteristics of children's poetry at all stages are that, as a rule, the poems are short in length and concerned with a single idea, mood, or atmosphere which belong to childhood (though not exclusively so). This brevity, for all the compression which accompanies it, must of itself be an attraction for many children who do not find it easy to express themselves at length in a continuous piece of prose. There are numerous examples of short, successful poems by children who would not otherwise have written anything of value at all. For many of these the writing of poems may well be the most natural way of expressing themselves in words. On the other hand, there must be many older children who are only too grateful to their teachers to be allowed to toss off a few short lines in lieu of a fuller and longer piece of prose writing.

The best poems, however individual and attractive their nature are, in most cases, the result of inspired teaching, by those who have a feeling for, and a wide knowledge of, poetry in the larger sense, and who are able to compose poems themselves. What is fed in, through experience of life as it is lived, of people, places, things, of the other arts, of books, the natural world, and of poetry itself will, in many cases, appear again in poems, though transmuted by the child's own personality and attitudes. The poems are not copies but reflections: influences are apparent rather than mere imitations.

The poems, too, will rely a great deal on imagery and figurative language, the result of accurate observation and assimilation. Much of this imagery will be dynamic and unusual, finding correspondences where, apparently, none lay before. It will often be amusing and imaginative, using words in a manner that can only have poetry for their lodging place.

The poems of the younger children not only possess some, or all of these qualities, but, also, at their best, are always full of feeling of

likes and dislikes, compassion as well as joy, dramatic to a point of astonishment that such things written about can be. They have their own separate existence. The telling of the experience seems to matter most of all rather than the deliberate choice of words to describe the experience, though the choice of the words themselves may, by their very arrangement, produce other experiences and set up a train of thought and feelings not primarily intended. These are the delicate ripples upon the waters of imagination, of which the experience is the stone that sets them in motion. The poems by the younger children about, for instance, their homes, friends, and the natural world, are often something much more than simple statements of fact. They are fresh and newly-minted sensations.

This does not suggest that all poems by children have these qualities. Much that is written today by children is trite, insipid, inept as regards technique, not truly experienced, full of faults, and over sentimental. Their forms are entirely arbitrary and at times are little more than chopped-up prose, with slack rhythms and bad rhymes. Too often the hand of the adult meddler is apparent, determined at all costs that the poems must be either 'contemporary' or 'literary'.

As children grow older and move into adolescence their poetry becomes more self-conscious and inward-looking. As Majorie Hourd wrote in her pioneering book, *The Education of the Poetic Spirit* (Heinemann, 1949) 'It is one of the marks of a work of art that the artist is in control of the situation. He will, of course, be driven by the winds of inspiration, impelled, too, by his own unconscious motivation, but he has his hands firmly on the steering wheel'. There are more experiments at this stage, more obvious imitation of their older contemporaries, a greater sense of urgency and compulsion. It is now that those who are to be writers later on in life emerge, their sprouts already on Helicon. They do not write so much as a part of their normal development as people but because, through words, they are able to show their feelings, boldly and baldly. Their poems are poems of rebellion, protest, disenchantment. Sex, death, modern materialism, disappointment in relationships—anything which seems to sour them, or to spoil their conceptions of perfection. This is the ore from which they mine their poems. Now it is that the cynics find a vehicle for their cynicism. They are stern critics of their elders and of accepted modes of thought and behaviour. Not that all adolescents are like this. There are many who gladly conform, who still feel the touch of beauty, who retain innocence, who find joy in the natural world, and who want to write as traditionalists. Their efforts are not to be despised. They are as contemporary as their more 'modern' counterparts. It is now time to turn to a few poems which have been written in recent years by children. With one exception, all the poems were submitted for the *Daily Mirror* Literary Competition. There is no evidence at all to suggest that the poems were written specifically for the competition.

ANGER

I was angry and mad,
And it seemed that there was hot water inside me,
And as I got madder and madder,
The water got hotter and hotter all the time,
I was in a rage,

Then I began to see colour's,
Like black and red,
Then as I got madder and madder,
My eyes began to pop out of my head,
They were popping up and down,
It was horrible,
And it would not stop,
I was steaming with anger,
No body could not stop me,
My mother could not stop me,
Then it was gone,
And I was all-right,
Horrible, black, madness.

The eight-year-old who wrote this poem, a typical effort by a young junior today has, as might be expected, limited literary ability. He cannot yet match what he knows instinctively to be the truth about anger with the most effective words. But although there are lines which to an adult might seem naive, and some obvious clichés, they are right for this child. So the poem has the ring of truth. As Walter de la Mare said in his monumental work on childhood, *Early One Morning*, 'When we examine rhymes written in childhood, mere commonsense will, of course, make the amplest allowances; and we shall expect nothing of much intrinsic value . . . we must remind ourselves again nonetheless that when a gifted child with a full heart and pent-up mind makes use of such everyday words as flower, bird, home, mother, longing; hate, afraid, magic, dark, time; sweet, mysterious, and so forth, they may be symbols for him of objects or thoughts or feelings from the intensity of which life and habit may for us have taken off the edge.' So it is with *this* child. But how effective is 'hot water inside me', and the directness of 'Then it was gone.' This was a genuine experience, well remembered, with its own logic and rhythm.

SUNRISE

The sun is rising from behind the tall grey mountains,
The trees are just yawning,
The dew on the grass sparkles like the bright stars at night,
The birds sing gaily.

The cat has a long strech
The ashes on the dead fire lie still.
The dishes from the night before are waiting to be washed
The games book lies streched out on the floor
The ash in the ash tray flutters about the room as I blow it.
A slight light appears through the curtians,
Every thing has got to be done sooner or later.

The nine-year-old writer of *Sunrise* has the right approach. There is vivid and accurate observation, carefully and strongly expressed, for instance, 'The trees are just yawning,' 'The cat has a long strech'. The shape of the poem, too, is unusually good. One can see the point of those straightforward statements about the sun, the trees, the dew, the birds, the cat, the ashes, the dishes and the games book (a brilliant touch, this) all leading up to the fine last line, a true punch line, 'Every thing has got to be done sooner or later.'

ECCENTRICITY

Just because you like to live,
In a neat little home in a town,
You think all folks should do the same,
And try to run me down.

You say I'm strange, you say I'm proud,
And you say I'm a mental case,
Don't you see that it's you who are wrong,
And your life's one long goose-chase.

A tidy suit, and a pure white shirt,
Is that what I ought to wear?
And next you'll surely inform me,
I ought to cut my hair.

I like my home the way it is,
I like the way I'm dressed,
So why should you force me to be,
Exactly like the rest.

Eccentricity is the work of a twelve-year-old. As regards its attitudes, it is very much a poem of our times, though the writer has chosen a traditional pattern for his purposes, as W. H. Auden might have done for his. It is a poem which conforms to the way one might expect some budding teenagers to write today. On the surface the words used seem almost too slick but the poem never degenerates into doggerel. Was the boy given this title or did he choose it for himself? In its way this is a powerful little piece which springs from genuine emotion and experience.

DEATH OF A SNAIL

A child,
  Eyes dark with wonder and mystery,
Watches a living animal
    Crawl,
  With slime trail
    Along the stone cold path.

A finger,
  Intent on investigating feeling,
    Reacts by touching
      The shell,
  Of spiralled frigidity
    Protecting a trembling body.

A mind,
  Disturbed by the clockwork movement,
  Puzzles and is maddened by,
    the unhurried life
    Of a tiny creature
    In a huge world.

A foot,
  Moved by instinctive anger
    Rises.
The instrument has been used
  To enlarge knowledge.
    Life is concluded
  Destruction ends the snail.

As an example of real talent, *Death of a Snail*, by a fifteen-year-old, could hardly be bettered. It is mature, it belongs to the writer's own generation, to Thom Gunn's snail world rather than to Walter de la Mare's or Andrew Young's. There is a firm grip of technique, both form and imagery are very telling. But does this writer care more for the words and phrases he has used than for what he is actually talking about? Although it is a very clever poem, it may not please everyone. The girl who wrote it may well become a writer. She can discipline herself even if she is not intimately involved.

These four poems, then, are typical of many which are being written on almost every day of the year by 8 to 15 year olds. That they are written at all is a sign of the educational times, the result of good teaching and influences. Perhaps the most magical poems are being produced today by the youngest children of all. What can one say, for instance, about *this* poem by a six-year-old? What would Blake have said of it? Or de la Mare? It belongs to 'the othere worlde' of dream, of magic, of incantation. Who is 'little one?' It would be better not to try and fathom its mysteries but just accept it for what it is and be grateful.

Go home, come here,
Little one is very near,
She's been out all day and night,
Now wake up, it's nearly light.

But let John Keats have the last word. He wrote to John Taylor on 27th February, 1818, 'If poetry comes not as naturally as leaves to a tree it had better not come at all.'

Teaching English to children of average ability in the middle ranges of a secondary school requires an organised and varied plan of reading, discussion and written work. This article discusses some of the ideas and indicates some sources of material which have enhanced modern classroom practice.

English in the Classroom

MICHAEL MARLAND

This article describes two fragments of English teaching, one, as it were, an ingredient and the other an organising method. Neither is revolutionary; neither is all-important. But perhaps they show something of the variety of expertise required of an English teacher, and of the flexible planning needed without the chapter-by-chapter sequence of a course book as a standby. The two descriptions may also hint at the problem of ordering and making available teaching material in a school and those of storage and ancillary help which require urgent consideration.

The generalities of English teaching are easy to articulate but difficult to make operational. In many ways the subject will remain one of the most traditional, with its concern for language, individual expression and response, but the feel of English teaching is very different now from ten years ago. To pick the significant trends is to risk losing the precarious balance that every English teacher is attempting, but I should say the major changes lie not so much in the individual lesson as in the pattern of teaching over a number of weeks.

The segmented artifice of 'Monday this', 'Tuesday that' has largely been smoothed away. It involved pigeon-holing poetry, chopping novels into weekly doses over a term, divorcing 'comprehension' from 'reading' by isolated exercises, and so on. A timetable will always impose *some* rigidity, and points of certainty in the week have their value (the private reading period, for instance), but the main organising principle is a natural flow, with periods and homework devoted to a run of work that is linked closely together, often by theme. (A good description of this pattern will be found in *Topics in English*, by Geoffrey Summerfield.) At other times the work will grow out of a particular novel or play, and from time to time an activity, such as producing a magazine or 'radio' programme, provides the link. All the language activities are called into use as required, 'instruction' being given at the point of need. (It is a common misunderstanding to think that because analytic grammar is not being taught, punctuation, for instance, goes by the board. This is not so.) Continuous writing, discussion, extensive reading, and close reading of verse and prose extracts are all woven into the run of work, with the occasional introduction of less familiar elements. Consider, for instanc the use of visual material as a vocabulary and composition stimulus.

Words need experience to clarify them—mere word listing is poor teaching. Much flat writing is the result of a failure to *see*, in reality or with the mind's eye. Therefore one of the teacher's tasks is to help the pupils to sense, and in particular to look. Two complementary processes can then be actuated; the visual apprehension gives a concrete experience to support the words, and the gathering and discussing of suitable words helps the eye to distinguish detail. The simplest way of doing this (best known since its use, and possible over-use, as the basis of Rowe and Emmens' *English Through Experience*), is to bring something (object, bubble, flame or even animal) into the room for the class to look at and talk about. Then the pupils are asked to look more carefully at certain aspects (the shape of the petals, the colour of the dog's hair) and each jot down the words they have found. Vocabulary is then pooled, and made common property.

More complex to organise, but basically the same in aim, is an excursion up the lane, through the park, or even just up to the top of the staircase. Even so the range of actual visual experiences is clearly restricted; further, although the invitation to look afresh at the familiar is valuable, the strange and the distant have a more compelling quality. Visual reproduction is therefore required, and this has the added virtue of giving access to material that can be more closely linked to the actual flow of work. Reproductions can include paintings, engravings, drawings, sculpture, and photographs.

The work of the best photographers not only shows us environments, subjects, and atmospheres that are unfamiliar, but it also reveals the familiar with a fresh vision by selection and concentration. 'Trick' techniques are usually too self-conscious as a basis for writing, but those occasions when the photographer's eye has chosen an unusual angle or highlighted unnoticed detail are particularly effective (c.f. the examples in *Voicies*, an anthology of poetry edited by Geoffrey Summerfield; *Things Being Various*, Clements, Dixon, and Stratta; or my own *Pictures for Writing*, and *More Pictures for Writing*). Such photographs make pupils acutely aware of texture, or concentrate attention on people, their facial expressions, posture, or emotions; they often capture what the photographer Eric de Maré calls 'the spontaneous second of significant movement'.

The vision of the artist can be brought into the classroom most easily, of course, by distributing single copies of individually collected reproductions. This way, though, I regret the loss of group reaction, and the sharing of vocabulary and idea. It is tempting to hold up a single copy for the group to study, but this loses the closeness required for detail and the opportunity to explore at length. However, postcard reproduction can be bought in class sets; Lowry's *The Pond*, for instance, fits well into a sequence on towns and is one of the most successful pictures I know for initiating writing. (Available at 5d from the Tate Gallery, Millbank, London, S.W.1., whose free catalogue is worth having). For maximum impact the projected slide is superb: its size, brightness, and the darkness of the room concentrates attention. Individual exploration is partly lost, but the class can really *share* the effect. Again, the Tate Gallery has an excellent selection of slides (which can be bought at 4s. 6d. each), including a wonderful sequence of Turners. The Victoria and Albert Museum (South

Kensington, S.W.7) have a loan collection on which only postage is payable. In this the Constable cloud studies and paintings are particularly successful as a basis for writing.

The visual experience starts trains of thoughts and feelings that can be powerful starting points for all kinds of writing. The key point is well put in the *Teachers' Book* to *Things Being Various:* 'As with literature, a teacher working with photographs learns to take the genuine response (wild or not) and start from there'. The teacher asks certain pupils what strikes them most forcefully, what details interest them most, and what associations or ideas the visual presentation brings to mind. The reactions are thus shared, details and points of view unnoticed by some being put forward by others. Before the discussion is exhausted, and while the ideas are still flowing, the class starts to write. At other times the material is used for small group work or individually, and it will be found that the same example leads to many different types of writing, although they all gain from the detailed observation that is the starting point. In some cases a straightforward description is attempted, concentrating accurately on trying to capture the atmosphere by selection of detail. Very often a narrative is prompted by the people in the picture and their surroundings. The emotions of the figures shown can be explored in verse of prose, or the writer can imagine himself as a visitor to the scene. At other times the feelings evoked by the picture are used quite personally as the basis for a piece of free writing that owes its start to the photograph, but which reaches far beyond it.

Although to be used sparingly, perhaps the most striking visual material is that on 8 mm film loops. The loop projector is very easy to use and appeals to the English teacher because the three to four minute film does not take a whole lesson but can be fitted in at the right moment. The teacher of English is an anthologist by nature, and the film loop is a vivid moment that he can include in his lesson anthology. So far the best loops come from biology series. One showing vultures, the flight, landing, and haughty stalking round of the bird, is particularly effective, as is that of a spider venturing out of its circular web and pouncing on a wasp, which it devours. (B2/460 *Vultures* and BSD/10 *Spider's Capture of Prey 1*, from Gateway Educational Films Ltd., 470 Green Lane, N.13, whose *Snakes*, BSF/02 is also particularly good). The essence of this use of film loops is the vivid physical representation (not, it is worth stressing, the possibility of a 'What happens next?' story element). The loop can be run through once or twice while the pupils talk, and then on a further showing the stop button can be used to freeze selected frames for closer scrutiny.

. . . Fragment Two

Visual material, then is a rich ingredient for the stimulation of language, particularly perhaps in the younger secondary classes. But what of the organising method? Here, as a second 'fragment', is an outline of how a sequence of reading, discussion, research, and writing might be worked out for a fourth- or fifth-year class, perhaps a group preparing for CSE.

A dilemma with which we are faced in bringing the novel or short story into class is the choice between two approaches: intensive exhaustive (and exhausting) study of a few texts by the whole class,

or extensive individual reading, largely pupil directed. The first is a poor preparation on its own for 'the common reader' of adult life, but the second threatens the shared reaction that is at the core of our teaching, as well as making it difficult, for the teacher to show the pupils that there is more in a book than they may have seen for themselves. A 'thematic' approach to the selection of books for one part of the year offers a promising compromise: it encourages wide reading; helps to relate the closely studied to the more casual, the major with the slighter book; it permits the comparing of different types of literature—biography, poetry, drama, novels: and finally it assists the giving of experience and body to fact, and the supporting of fiction by fact. (It is important to avoid the danger of suggesting that literature is a collection of illustrative facts.) In some ways this method of choosing books for class study offers something a little nearer to the selection processes of the average adult reader, who frequently chooses books which give some hint of having an echo of his own experience, or touch on a personal concern. I am reminded of Richard Wright's remark in his absorbing autobiography *Black Boy* who says of his adolescent interest in reading: 'The plots and stories in the novels did not interest me so much as the point of view revealed.'

Many themes will suggest themselves to teachers, and there are a number of good ideas in *Language and Education* by F. D. Flower. As an illustration I shall take that included by the Metropolitan Region CSE Board as part of their 1969 syllabus: 'Childhood and Growing Up'. The syllabus lists twelve books, and states: 'Candidates should read at least eight of these, including two to be studied in some detail. At least one of the eight books should be a play. They will have to answer four questions: one on each of the two books prescribed for detailed study and two general questions drawing on material from the range of texts. When candidates answer these general questions they may support their answers with material from other sources, e.g. private reading (especially poetry), films, performances of plays, and personal experience'.

I should start with a class reading and discussion of a pair of short stories that would pinpoint aspects of the theme: Alan Sillitoe's *Noah's Ark* and Doris Lessing's *Through the Tunnel*.

Immediately more general discussion could broaden out from the specific discussion of these boys (the one testing himself by a dangerous act, the other relating his childhood values to the needs of the adult world). Why, one can ask, have so many modern writers used the point of view of childhood? And the class will see that it allows them to see the child from the point of view of the adult reader, and the adult world through the eyes of a child. This switching from a particular passage to broader generalisation is possible throughout such a course of reading, and is, I feel, close to the normal mental process of adult reading.

At this stage, one can issue a longer list of books related to the theme and from which each pupil must choose a given number to read. Groups of pupils who have all read one title then meet for group discussion, from which one member reports to the whole class. At other times each reader chooses an extract which he considers illustrates one of the more general points about childhood that has been encountered elsewhere in the work of the class.

While this individual reading is under way, various class activities are started to support and illustrate the books being read individually. In the factual, sociological field (and it is easy to forget as an adult that part of our grasp of a novel does depend on our background understanding) I like to read the chapter on *The Vicissitudes of Adolescence* in Professor G. M. Carstairs' *This Island Now*. Other sources include *The Language and Lore of Schoolchildren*, extracts from the Plowden report, and a few of the many books on bringing up children. How do these sources compare with the pupils' own experience and observation, and with the children in the fiction they are reading? An historical perspective may be put in, starting, perhaps, with Hogarth's painting of *The Graham Children*. The way eighteenth-century children were dressed reminds us that they were thought of as curtailed adults, of little real interest in their own right. This leads on to the ways in which children were brought up at different periods, the approaches to education we find in *Hard Times*, and something of working conditions under the early apprenticeship system and during and after the Industrial Revolution.

But all this is in books and museums. The pupils should add their own investigation and field work to it—visiting primary schools and relatives' families, making their own tape-recorded interviews for replay and discussion. Out of the whole range of activity would come much inventive writing by the pupils, recollecting earlier events in their lives and trying to recapture the point of view of their earlier selves. They write well on such themes, and this brings the work full circle again to professional writers who have transmuted 'life' into 'art' in some of their stories, and whose comments on their writing are therefore of especial interest. (Keith Waterhouse, Alan Sillitoe, and Doris Lessing, for instance, have provided introductions to their own stories in Longmans' Imprint Books.) Poetry, prose extracts, and drama would be specially chosen (the Metropolitan Regional Examination Board, recommend John Mortimer's *David and Broccoli* and Terence Rattigan's *The Winslow Boy*) and would be joined by films. The British Film Institute (81 Dean Street, London, W.1) give advice and distribution details. I should especially recommend the dialogue-less film by Mai Zetterling, *The War Game*.

A special section of the work can be on children's fiction: how are children portrayed in books written *for* them? Portrayals in *The Family from One End Street*, *Otterbury Incident*, *Gumble's Yard*, or *Magnolia Buildings* can be compared with those in *Border Country* by Raymond Williams or *In Hazard* by Richard Hughes. An interesting comparison for the more able pupil is between Alan Sillitoe's *Key to the Door* and Julian Fayne's *Morning*. Both describe young children and their parents on the verge of the 1939 war, and in each the father is called up, but the first is set in working class Nottingham and the second is an upper-class country house.

Perhaps there is sufficient to indicate something of the course of work which the exploration of such a theme could offer to an older class, combining close study with wider reading, group work with individual work, literature with fact, and throughout requiring considerable discussion and personal writing.

'Freedom of choice, is something which all adolescents claim; wise teaching and organisation can help them to justify that claim. One of the main advantages of the "personal topic" is that it provides the opportunity of choice.'

Newsom Report

The Personal Topic in the CSE

HAROLD BOYER

By personal topic is meant a piece of work chosen as far as possible by the individual pupil for further investigation because it appeals to him or her for personal reasons. A topic requires a reasonable period of time to produce. After the necessary study has been undertaken, the findings are usually written up in folders and are nearly always supplemented by illustrations, and sometimes by charts, maps, diagrams, or even specimens and models. The essential differences between normal classwork and the topic approach is that classwork is prescribed by the teacher, usually in step by step detail as part of a set syllabus which the pupil has to do, whether he likes it or not, whereas a topic is a study he is encouraged to select, explore and develop for its peculiar personal attractions with only general supervision. In the words of the Newsom Committee report: 'One of the elements involved is that which shines out when the only possible answer to the question 'Why are you taking so much trouble to do this properly" is "Because I enjoy doing it" '. The report continues, 'The situation may well arise in the course of a hobby, but it may also be found in parts of school work. Where it occurs it is something to be fostered—doing something worthwhile for its own sake is a principal aim not only in education but in life. It is within reach of clever and stupid alike'.

The elements of choice and enjoyment have long been recognised in the primary school where topic work has been done under various titles such as projects, personal assignments, special studies, individual work, and others. This type of work has the advantage of satisfying the now generally accepted criterion in education that schoolwork should be child-centred and designed to fit the widely varying individual requirements of children. Once the pupil has chosen a topic that genuinely interests him, he can take his own time over it, he can bring his own aptitude and ability to bear on it, and experience the thrill of exploration, discovery and increasing mastery.

The role of the teacher is of course vital. Almost invariably it is the good teacher who directly or indirectly sows the seed which will blossom into a flower of interest and a fruitful absorption. The original choice of topic is all-important and the teacher will need to exercise a certain amount of tactful guidance. A pupil may select a topic beyond his capacity or of too wide a range, or one for which the necessary source material is not available. Careful personal discussion rather than direction of the best choice of topic is therefore essential.

So, clearly, is guidance on the most profitable way to pursue it. This will vary for different pupils; some will require a good deal of help, others very little, and no one can be a better judge of this than the teacher who knows both the individual pupil and his environmental circumstances. All his pupils will almost certainly need constant encouragement. Despite the need for guidance and supervision however, the pupil is bound to acquire a feeling of independence that comes from having exercised a choice and from doing personal work normally different from that of anyone else in the class.

Such supervision and nurturing impose a heavy task on the teacher and present serious problems, so much so that some few teachers have been known to say that the claims made for the personal topic are open to doubt. The writer of one article even goes so far as to suggest that the personal topic provides an examination candidate with unparalleled opportunities for 'academic skullduggery', yet in spite of this, the writer comes down in favour of the Personal Topic. It is not of course inevitable that all pupils will respond wholeheartedly to a personal topic, that there will not be some who will regard it as no less burdensome than any other schoolwork. These unwilling snails will no doubt copy blindly from textbooks or try to persuade someone else to do the work for them, but it would be a poor teacher who lets them get away with it. The success of the topic approach to learning is bound to depend to a large extent on the enthusiasm, the ingenuity and the knowledge of the teacher in charge. Once the initial interest has been established, what are the resources required, and where are they available?

Using Libraries

The basic need is clearly reference material. Practically every school nowadays has a library of its own. Where the books are inadequate or insufficient for the purpose in hand, most local education authorities have central libraries where a school librarian is willing to help at short notice. Failing this, there may be someone to show an interest at the local branch of the public library.* For primary literary sources the local record offices are usually willing to supply copies of manuscripts, charts, plans, diagrams and maps.† An increasing number of universities and colleges of education have embarked on the compilation of local source materials and subject bibliographies which they are anxious to see used in schools. Some LEAs have their own museum services which may be consulted. The various professional associations are always ready to offer advice. For industry and commerce there is a trade index of firms which are willing to give information or to arrange visits. Foreign and Commonwealth embassies and consulates are usually ready to answer enquiries and sometimes send illustrated pamphlets.

One of the most valuable means of acquiring both interest and information in a topic is by means of a field study on the spot. The opportunities for such a study vary widely but most education authorities make provision for visits to local or national places of interest. In Northumberland, for example, there are five residential centres run by the LEA, which are visited annually by some 5,000 secondary

*See *Reports on Education* No. 34 Public Libraries and Education, together with notes on using libraries, museums and other sources of information. Free from DES.

† See *Archives and Education*, HMSO, 1968.

school pupils. Parties of boys and girls, varying in size from 16 to 36 and aged mainly from 14–17, attend these centres usually from Monday morning to Friday midday of most weeks in term time. The aim is to give these pupils the experience of living together away from home, to teach them the enjoyment and use of the countryside and to help them to study in the field, aspects particularly of geography, biology and local history which could not be found in the classroom. At some of the centres interest extends to art, archaeology, wild life, literature and drama and is designed to stimulate thought and cultivate feeling. The centres frequently invoke a vivid enthusiasm among pupils and visiting teachers alike. Although there are excursions in which the whole party is involved, group activities and individual preferences are deliberately encouraged.

It would not be possible, except at the cost of excessive length, to describe all the activities encountered at these centres, but a few examples may indicate their diversity. One group studied the terrain and the historical significance of the Battle of Flodden Field and recorded their findings with notes, maps and diagrams as well as with much lively work in art and English. Another group studied the evolution of farm buildings and machinery in the neighbourhood of the centre, with reference to the agricultural revolution. They made rough notes and sketches on the spot which they elaborated competently on their return. Still other groups or individuals visited local towns and villages, castles and abbeys, investigating their history, their buildings and their main occupations and gathering a harvest of information which kept them busy and absorbed for weeks on end. At two of the centres, maritime studies are extremely popular; at another, abandoned mines offer a study for industrial archaeology.

All the courses are specifically designed to give the young students good field techniques. Grammar school sixth form groups often follow a plan of studies specified by their schools. One such group was seen exploring different Iron Age settlements in the Cheviots. These were carefully measured and plotted with the aid of a plane table and the main features were sketched in. During the course of this work new settlements were discovered which had not previously been recorded in any published work. The majority of courses for younger pupils from modern schools tend, however, to follow a number of standard patterns evolved over the years. A considerable amount of duplicated material, prepared diagrams, questionnaires, work sheets, reference lists, large scale map sections, are available as time-saving guides to the pupils, as also are numerous good reference books. As a result of contact and experience with these original and standard sources, the pupils gradually gain new interests and confidence in pursuing them which not only help them with their examination work but often provide a hobby for years to come, sometimes to be continued and developed in further education.

Most of the subjects of the curriculum, including a mixture of integrated subjects, are suitable for personal topic work. One of the traditional secondary school subjects that perhaps lends itself most readily to the personal topic approach is history, because it is a subject full of drama and adventure. Dr G. R. Elton elaborates this claim. He says, 'History is concerned with all those human sayings, thoughts, deeds and sufferings which occurred in the past and have left present

deposit, and it deals with them from the point of view of happening, change, and the particular'.

CSE History

A steering committee of the Schools Council has recently spent two years investigating the place of the personal topic with special reference to history. The task was timely for two reasons; because History appears of late to have lost some of the impact it once had as a school subject and because an increasing number of regional examination boards are including the personal topic as a compulsory or optional part of their history syllabus in the Certificate of Secondary Education.

The Schools Council steering committee examined some 200 topics submitted by candidates for the CSE in 1967. They included an enormous variety of subjects. One was a study of a local manor house which had fascinated the candidate for many years. He consulted the current owners who were most helpful; he interviewed the older inhabitants of the village; he discovered original manuscripts and later extensions and he gradually uncovered the history of the house dating back two hundred years. He took photographs and drew plans and finally compiled a folder worthy to be accepted by the local record office. Another candidate discovered a bundle of old letters in the attic of her house which went back to 1808 and extracted from these and from other sources the intriguing story of how a young girl and her family had lived until her marriage in the early nineteenth century, against the historical background of her time. Other topics dealt with the historical evolution of ships, motor cars, aeroplanes, and fire-arms, with the Crimean and other wars, with the emergence of the sciences, trade unions, the welfare state, and racial problems, with various famous and less famous personalities and with many different aspects of local history.

There were of course also the usual chestnuts such as costume, houses, food, and transport through the ages. A fresh approach sometimes compensated for these more orthodox subjects. One girl candidate who chose 'famous women' for her topic, invented for each of her three heroines, diaries in which a number of imaginary parallel entries based on the history of the time were designed to highlight important events in their lives as seen through different eyes. The committee awarded bonus marks for such enterprising treatment. Many of the topics scrutinised showed considerable originality, plainly inspired by a genuine personal interest. There was evidence too, of initiative, ingenuity and sound judgement and here and there the pleasure and pride of having produced a sustained and carefully presented piece of work. At a time when teachers are constantly urged to stimulate oral discussion and creative writing by means of the personal involvement of their pupils and by providing them with more direct and varied experiences, the personal topic with its opportunities for the study of primary and secondary source material and of the immediate environment should be welcome.

In the personal topic it is thus probable that teachers have a ready means, like Mr Gradgrind's funnel, to instil a liking for learning into 'the little vessels'. As already stated, not all teachers believe this, but from the considered observations of a random sample of 100 secondary school history teachers by far the majority of those who had worked with personal topics were in favour of them.

This article, on teaching practice, continues Trends' *series on the work of the colleges of education*

Innovation in Teaching Practice

L. W. DOWNES and K. E. SHAW

In education, innovation rarely occurs with striking suddenness as it does in industry following a technological breakthrough or in medicine when successful research opens a new path. It is rather that the rate of innovation accelerates in periods when the traditional procedures are seen to be failing to meet new circumstances. Innovation may indeed be related to technical advances—programmed learning or language laboratories, for example; but it is at least equally likely to take the form of superior organisational arrangements or more sensitive methods stemming from deeper insight or changed attitudes. For instance, creative writing in primary schools, or Nuffield science may go back in inspiration to attitudes common in the 1930s, and to Dewey; but they needed to wait for circumstances which favour the introduction of innovation. These usually arise when pressures outside the system are great and the need for adaptive change is pressing. For colleges of education such a situation came about as a result of explosive growth and the three-year course. In addition to the huge increase in numbers of students and staff there was the increased pressure which resulted from sharply increased productivity made possible by the introduction of box-and-cox schemes, shortened and post-graduate courses, 'crowding-up' and the four term year. K. G. Collier has presented the broad picture in the June 1967 issue of *Trends*.

Teaching practice is of particular interest as an area of innovation since it involves not merely the domestic concerns of the colleges but also the essential and delicate relationship with schools. Innovation then is not so often a breaking away as an intensification or acceleration in a process, a reorganisation or a redirection.

In the earliest days colleges had little to do with schools since most of their entrants had already some experience of teaching as pupil teachers or as monitors. Their academic standard is shown by the fact that reading and writing figured on the syllabus, and the need for general education was such that there was little time left for professional training as we have since come to understand it. But in the sixties of the last century the Government began to offer attractive grants to colleges. If they could show the Inspectorate that their standards, including standards of professional training, were good enough, they were allowed to accept grant-aided Queen's Scholars (the big money-spinners of the day). Longer and more systematic teaching practices at once made an appearance. With the hindsight of a hundred years we can see how primitive were the early conceptions of practice, based simply on apprenticeship or 'improver' notions. The head of the practising school was not a staff member, and had a lowly status beside the tutors, who were often clerical graduates. Though he came to be called the master of method in many cases, his salary position

and professional status remained inferior for very many years.

A further indication that there was an officially recognised difference between professional and academic aspects of teacher-training was the fact that assessment of students was carried out by HMIs. Even as late as 1929 assessment was in the hands of HMIs, and, indeed, the Inspectorate retained this rôle during the post war emergency training scheme, though they had voluntarily given up the assessment of college academic work as far back as 1927.

The dichotomy between academic and professional aspects of teacher-training continues to appear as a recurrent theme in professional journals, in discussions within colleges, and in relations between schools and colleges. Whilst the education of students to the limit of their academic ability and their training for the specific work of teaching may not seem to the casual observer to be opposing interests, there is ample evidence to suggest that it is a conflict with deep historical roots and serious psychological implications.

There is now a much deeper awareness in colleges of the impact of teaching practice on students. It is a climax in the course and a vividly remembered experience. The development which takes place in the student is much more complex than mere improvement in professional skills. During teaching practice the ideas and beliefs which students have been forming at college about what is probable and possible in the classroom rapidly crystalise. So do evaluative categories of good or bad work and behaviour, and predispositions to see situations and human relationships in particular ways. Maurice Shipman's research at Worcester has now provided valuable evidence of what colleges had long felt: that in the dialogue between schools and colleges about the values and assumptions underlying professional commitment, the schools' arguments seem to prevail. What appear to survive among students after a college course are the tougher-minded pre-college attitudes, and traditional methods of teaching. In thinking about the innovations to which we shall now turn it is important to bear in mind that, for these reasons, innovation in teaching practice is more than a matter of changing the organisation or administration.

Modern Variations

The traditional method of teaching practice has been that of a block practice of a month or more, the students scattered over the area in small units often dictated by the wishes of schools, and supervised by college tutors assisted by headmasters and staff. Some of the innovations which depart from this tradition can be seen in most areas; others are confined to areas where the particular ideas of tutors and heads have made a special impact; others are still in the embryo stage. In any case there will be more innovations than can be listed here.

(*a*) To avoid the 'drop in the ocean' situation where the students ideals and attitudes are swamped by the situation into which he or she is suddenly plunged, a 'team' of students are placed in a school. They then plan their work (or some part of it) on a team-teaching basis, working with the school staff, but able also to look to one another for support. They meet for regular seminars during the week with college tutors and teachers to discuss both content and method. The establishment of such a system depends on close, understanding relationships between schools and colleges.

(*b*) Where such systems can be established, it becomes possible to release one or more teachers to come to college on a fellowship basis for the whole period of the practice. Such teaching-fellows might take a course in a special aspect such as modern mathematics, but they would participate generally in the teaching work of the college. It would also be a valuable method of selecting 'master teachers' (see below) since the released teachers would become more aware of the colleges' attitude to teaching-practice.

(*c*) Since changing attitudes and the pressure of expansion make it more and more difficult, and probably undesirable, for the function of supervising students to be left exclusively to college tutors, the idea emanating from the United States, of the 'master teacher', is receiving a good deal of attention. The idea involves using selected teachers in the pastoral and professional care of students on practice as well as in the assessment of their professional competence. There are many difficulties in the selection of teachers and the work involves a certain amount of strain for those selected (as it does, of course, for college tutors). They are involved as judges and at the same time as helpers, without the resource of the college tutor who can withdraw from the situation and reappear at a more convenient moment, thus keeping the partially conflicting roles to some extent separate. Teachers, moreover, perhaps from an unwillingness to seem to dominate students or from a fear of appearing reactionary, on the whole play down the directly supervising role under present arrangements.

(*d*) A developing innovation over the last 15 years has been the concept of study practice which takes the place of at least one period of 'block' practice. In one college, for example, the students do a 'block' practice in each of the first and third years, but during the whole of their second year their contact with children and schools takes the form of a weekly visit for half a day. Typically, ten or twelve students, together with a tutor, take over a class and carry through a programme of work and study. They do this often in collaboration with the class teacher (or subject teacher in secondary schools) who provides relevant information from school records and from his personal experience of the children.

Each student becomes responsible for two, three or four children whom he gets to know much more intimately than he would under ordinary conditions. He visits the children's homes, makes sociometric surveys of the class, uses standardised tests when appropriate, and teaches his children individually or in the group. He also has opportunities during the year to teach the whole class and to take part in excursions and projects. All this is under the supervision and support of his college tutor, who organises weekly discussions and tutorials on the work as it proceeds. The student keeps a careful record and presents a report or study at the end of the year for assessment.

The aim of this part of a student's training is primarily to make child studies which will have some significant relevance to his later work in psychology and sociology but it is also intended to provide him with a continuous link with a school which will give him many opportunities to reflect on his own technique and attitudes as a teacher. The system has also proved a valuable means of creating good relationships and providing mutual help between school and college.

Assessment and Supervision

Alongside the organisational aspects of teaching-practice and its impact on the students, there is the equally problematical area of assessment and supervision. Not only the administrative arrangements for supervision but the way it is carried out are important. In fact this last point involves perhaps the most intractable problem of all. The very large influx of new tutors into rapidly growing colleges, often with hasty induction procedures, has meant that assessing standards is even more a hit-or-miss process than before. At least in the past it was easier to arrive at agreed methods and standards simply because fewer tutors were involved. New and unfamiliar schools in outlying areas are being used, and add further variables to complicate the task. Finally, the more the teaching method leaves behind traditional classroom instruction, the less appropriate present methods of assessment may seem.

New developments in assessing students include:

(i) A wider recognition of delusions concerning the fine grading of students performance. If a simple pass/fail decision replaces the five-point scale of assessment (nearer to twelve-point if pluses and minuses are used), there is more scope for what Professor Tibble has called the 'helping role'.

(ii) Some university education departments, have experimented with teachers as co-tutors and with indirect assessment. The teacher co-tutor scheme uses specialist teachers, each supervising one student. Three or four co-tutors and students hold group seminars twice during the practice, and offer advice and comment on lessons, as well as views on the student's performance in distinction/pass/fail terms.

(iii) A method which might be labelled 'indirect supervision' depends on reports on their own lessons written by students at the rate of one or two a week. Reports are read in group discussion with tutors at college and used as a basis for group supervision. The scheme calls for a fairly long practice period to be effective, and can not be used if students are practising outside the immediate area of college. A further drawback is the danger of the natural criticism that tutors do not get themselves involved in school-work and may be guilty of 'ivory-tower' attitudes.

The new methods have in common that, in order to take advantage of teacher participation in teaching practice supervision, the assessment aspect has to be reconsidered, and the emphasis on it reduced.

The strenuous conditions of recent years and the increasing volume of research into the effectiveness of training have forced upon the colleges a deeper realisation of the true complexity of problems of teaching practice. They have also greatly intensified pressure on the existing machinery. It seems likely that the times are ripe for an increase in the rate of innovation. There is a good deal of evidence that new attempts are being made to meet this abiding problem both as regards organisational sophistication and the possibility of influencing students' underlying attitudes. It is unlikely that we are within sight of a major breakthrough in either aspect; but there can be no doubt that this crucial feature of college of education life is undergoing a salutary rescrutiny.

This article continues Trends *series on in-service training by various local education authorities.*

Using Local Talent

A. H. DALRYMPLE

Like other boroughs in the GLC area, Barking was a constituent part of a county council until 1965, and participated in the county scheme of in-service training.

When administrative divorce from the county took place, it was necessary to re-organise teachers' courses. Unfortunately, the resources in manpower, finance and clerical help that a major authority is able to provide were not available. All the advisers, except one, were shared with other neighbouring LEA's and, consequently, had to divide their time and energy between two or three large areas. In any case, their courses were confined to their specialities of art, handicraft, domestic science and the like and did not impinge on the general field. It was therefore decided to invite the help of people who were in the 'front-line' of teaching—the head teachers and their assistants. Without them general courses in the borough would have been in a much more limited scale.

After the preliminaries had been settled, it was felt that in-service training should be organised so as to make the existing teacher more effective in the classroom, to provide a basis for the attraction of more teachers straight from college and, finally, to provide a centre of interest for them in their own borough.

Ideally, the amenity that would have served this purpose would have been a teacher's centre. It was not possible to provide this. The next most practical thing was to utilise school buildings situated at convenient spots, as meeting points for teachers. This ensured that after a hard day's work there would be the minimum amount of travelling to be done. Although these arrangements were not perfect, it was amazing how attention to this factor greatly increased the numbers attending.

The next step was to 'spot' the talent in the schools that would enable the provision of the most expert guidance for colleagues. This presented problems. There is sometimes a natural reluctance on the part of a teacher, however skilled he might be in the presentation of his subject, to demonstrate his prowess to others who might have longer teaching experience.

It seemed to us there were three main areas to be concentrated on; primary work; secondary work, with due attention to the liberalising as well as guidance, of the subject specialist; an attempt to widen the range of teacher recruitment by preparing courses for married women returners and also to provide a short three months' course for the Indian teachers.

When, therefore, the second school term under the aegis of the new London borough opened a three months' course was prepared in English and the theory and practice of education in England, for

Indian teachers. There was also a course on the curriculum and organisation of a secondary school for those aspiring to a headship, and a number of sessions for probationary teachers to meet and discuss their various problems. In addition, it was decided to provide an external post-graduate certificate of education course for untrained graduates and scope for teachers wishing to learn more about maladjusted and backward children. A course for married women returners failed to materialise for lack of support.

The most highly specialised knowledge available was acquired for the course, and the services of expert lecturers obtained. Wherever possible, the borough's own teachers were utilised. Their services were invaluable when it came to the course of Indian teachers and they played a major part in guiding their overseas colleagues. The Indian teachers' course was repeated in the spring term and to it were added courses on modern mathematics and the use of teaching machines, which drew very large numbers. 'Creative activities in the primary school' was also a well-attended course. As the meetings with probationary teachers had in the past seemed profitable, a one day conference was organised for them. A school with a modern building was closed for one day. Again, full use was made of the borough's teachers and their efforts were complemented by several college of education lecturers.

The atmosphere was informal, and the intention was to get our probationary teachers to talk about their work, and their feelings about teaching, and to give them the chance to ask questions of their senior colleagues without embarrassment. As a result, some very useful information was obtained by us and we hope by them.

Basic Principles

In addition, through the good-will of the principals concerned, talks were held with third year students on 'The link between the final year at college and the probationary year at school'. The talks dealt with basic principles: adequate preparation of the student so that he could glean the utmost from both theoretical and practical aspects of his course; the approach to the teaching practice sessions by the student on an integrated basis, where an attempt should be made from the first, to study not merely the children and their reactions, but also to note and mark the ways of head teachers and their colleagues in order to achieve the maximum from their knowledge and experience. It was also suggested that it was necessary for the student to learn how to project his personality on to the school scene without appearing to be brash or overbearing. Each succeeding teaching practice should provide not merely more 'know-how' but also more self-insight. Every possible preparation should be undertaken to ensure a good start at the beginning of the autumn term, and this should include, if possible, a one day visit or a few days' teaching, in the school to which the student had been allocated. In addition to a plea for an out-going approach to colleagues and to work in the schools, it was emphasised that the first year in teaching was a mere initiation to a complex area of responsibility and that it would take another two years for the novitiate to reach a point where he could begin to contribute with some authority to the education of the children.

During the second year of the borough's existence, many more courses

were arranged which involved the same principles as before; maximum involvement of the teachers both as givers and receivers. The period in which these courses took place coincided with the re-organisation of secondary education, an event which raised fundamental questions in relation to preparation of teachers for the task of teaching children of varied abilities and aptitudes, in new situations. To discuss the proposed new system, a series of four lectures was organised and discussions with the secondary head teachers took place, which again proved very instructive. As a follow-up, a head teacher with extensive experience at a senior level in a comprehensive school gave four lectures on organisation and the curriculum. As with several of the other courses, this was also well patronised by teachers from Barking and the neighbouring boroughs. Over a hundred attended, a number large enough to encourage cross-fertilisation of ideas in discussion.

One final area that was explored involved the untrained graduate. Sometimes there is a happy marriage between him and his job, but often the incompatability puts a severe strain on all concerned with him. In a sense his problem resembles that of the overseas teacher who does not know the ways of our schools. Sometimes his main use depends on his subject and the quality of his degree, but often he is merely used to fill a gap in a school, be it junior or secondary. His future will then depend very much on the amount of guidance that his headmaster or his head of department can give him.

To provide a little more knowledge of this situation, a one-day conference was held which investigated ways and means of helping teachers of this category in the district generally, and it was decided that its shape should be as follows:

A lecture on the subject of class management and all that goes with it.

Discussion on method with an established teacher, the graduates being divided into groups, appropriate to their special subject.

Discussion on the values inherent in the process of education.

An opportunity to view examples of work in primary schools and to discuss with the authors of the projects aspects of interest.

In conclusion it seemed that a month's induction course on full pay would be a good preparation for such graduates before they were allowed to assume responsibility for a class.

This course would comprise background lectures on method, psychology, class management and other relevant topics, plus observation and practice in a school. At the end of this period the student teachers would be allocated to a school and would be strongly recommended to undertake the Borough's course for the University of London external post-graduate certificate.

One other scheme tried recently was that of holding a teaching practice seminar, promoted for students on practice in the borough. These students came from different colleges and a splendid opportunity was afforded for consultation between the various college lecturers, students, head teachers and officers of the local authority on this important field of training. This was regarded as an integral part of the teaching practice for the student and proved extremely useful.

This article is condensed from a paper presented at the Conference 'Computer und Angestellte' arranged by the Industriegesellschaft Metall in Oberhausen, Germany in March.*

Vocational Training in Britain

L. R. B. ELTON

The shortcomings of our system of technical education, which relied almost entirely on day release and evening classes, and which did not make it compulsory for employers to release their staff nor for young people to attend classes, were listed in the Crowther report, where certain very obvious educational remedies were suggested, which would still not change the essentially voluntary nature of the system. Many of these are still waiting to be implemented, although some were included in the re-organisation which followed the White Paper in 1961. Any hopes of a radical change were dashed when the committee reporting on day release in 1964 were not even allowed to discuss the possibility of compulsion on young people to attend classes or at least to give them the right to attend, in the sense that employers would be required to release them, if they wished to go. In technical education there has at least been, since 1944, the compulsion on local education authorities to provide the facilities. No such compulsion existed on industry in the parallel field of industrial training until the advent of the Industrial Training Act of 1964.

Manifestly, technical education and training in the United Kingdom have not received the same attention as have school and university education. That this problem is not confined to Britain can be seen in studies published by UNESCO. Replies to an official questionnaire addressed in 1959 to Ministries of Education indicate that growth in technical education in response to rapidly increasing technological needs has been of recent origin, and eight years later according to Hugh Warren in *Vocational and Technical Education*:

> The prestige value of university studies and the increasing financial assistance governments will provide for university students have caused the volume of technician training to remain quite inadequate for national needs. This lack is acutely apparent in the United States and has been so in Western Europe until recently. In the Soviet Union technical training for this level only just keeps up with industrial demands.†

Industrial Training

The present position regarding the training of industrial technicians in the United Kingdom, following the passage of the Industrial Training Act in 1964, has been both extensively reported and criticised by the Estimates Committee in its 1967 report *Manpower Training for*

*Copies of the complete paper, which contains a comprehensive list of references, may be obtained from Professor Elton, University of Surrey, Guildford, Surrey.

†UNESCO, Paris, 1967.

Industry. Because of the voluntary nature of industrial training that has already been referred to, a levy/grant system has been devised to raise the necessary finance. Unfortunately, there is evidence that the boards, set up under the Act, have so far concentrated on this financial aspect of their work. As a result it has been said that the whole scheme is in danger of being strangulated by regulations and committees, and that there is little evidence so far that the boards are beginning to achieve their primary purpose of improving training as a whole. How far this criticism is justified, it is too early to tell.

A second aspect of the work of the Ministry of Labour concerns the provision of Government Training Centres. These are largely concerned with training at craft and skill level, and to that extent are outside the scope of this survey. At the level of technical supporting staff a survey in 1965 showed that 60 per cent of technicians in industry lacked formal qualifications and it concluded that 'up to the present this manpower group so vital to the effective utilisation of qualified manpower, has been fed largely from the shop floor and by part-time study'. That some of this training from the shop floor is good, is beyond doubt. A survey by the Industrial Training Council had listed a number of successful schemes, but J. T. Young, in *Technicians Today and Tomorrow*, which surveyed the whole field of technician education and training, wrote that 'it is difficult to obtain examples of such (industrial training) schemes even from firms which acknowledge the existence of technicians and have programmes of education and training for them', and only lists two such schemes, designed to show what can and what is being done. The extraordinary situation in which firms even fail to acknowledge the existence of technicians is presumably related to the difficulty of defining the technician and to distinguish him on the one hand from the technologist and on the other from the craftsman.* The situation is clearly patchy and needs much further investigation.

Training is bound to be inadequate if the training of industrial training officers is inadequate and the Estimates Committee thought there were serious deficiencies. Even more seriously, there is strong criticism regarding present practices of re-training. 'If nothing is done, there is a real danger that much of the value of training will be wasted in perpetuating obsolescent crafts and skills rather than in encouraging the new techniques which are essential for the vitality of industry.'

Commercial Training

Commerce and office personnel might be considered to be the equivalent of technicians in industry. The main differences between their training and industrial training is that, while the latter has been going on for so long that one of the major obstacles to reform lies in the existence of firmly entrenched traditional practices, the former is mostly so new as hardly to exist. This may seem astonishing in a nation that for so long has relied on commerce as one of its main sources of wealth, but it is a fact.

The recent survey by the Central Training Council discovered for instance that only eight per cent of the under-twenty-one age group

*See *Educating Technicians* in Trends in Education No. 11.

received formal training, and that over a third of the training schemes involved were less than three years old. Training is concentrated at the professional level, where it has traditionally been the practice in commerce and related fields to take in trainees at the age of 16 and provide a training which in many instances is as demanding as the education given in the sixth forms of schools and in the universities—but it is strictly vocational. Greater opportunities for more general education becoming available has made this kind of training increasingly unpopular among discerning young people, and firms have found it necessary to recruit at 18 or even 21 and provide reduced training schemes for these more mature candidates.

The higher proportion of women employed in commerce than in industry may account for the dearth of training facilities, for over the whole field of employment women fare consistently worse than men with regard to training and education. Thus in the training of clerks it was found that training schools open to both sexes or to males only set a higher entry standard, provided more day release, and led to higher qualifications than corresponding schemes for females only.

The recommendations of the Central Training Council report for the improvement of commercial training are far reaching and, when put into practice, will bring commercial training into line with industrial training. The Board stresses the need for the training of supervisory staff and recommends that the small and medium-sized firms, which at present provide very little training, should combine their efforts. Finally—and this is perhaps the most revolutionary of its proposals—it recommends that some of the training should be full-time.

The report is essentially concerned with traditional office work, and in particular, it does not deal with the training and education of computer personnel, which has been the subject of a separate report. It is estimated that the number of computers in Great Britain will treble between 1965 and 1970, and it is only by genuine co-operation between industry and education that the consequent demand for trained computer personnel can be met.

Further Education

The duties of the Industrial Training Boards do not stop at industrial training, but also involve the consideration of the associated further education, which is provided in the technical colleges. It is one of the peculiarities of the British educational system that there is an almost complete separation between the schools and universities on the one hand, and the colleges which provide technical and further education on the other.

Technical colleges grew out of the mechanics' institutes, and it is a consequence of this that they have always catered only for those beyond the statutory school leaving age, largely on a part-time basis. This is in contrast with most systems on the continent, where the technical school simultaneously educates pupils both below and above the school leaving age on a full-time basis.

For a long time, technical education suffered from the prevailing prejudice which was so eloquently expressed more than two thousand years ago in *Ecclesiasticus:*

> The wisdom of a learned man cometh by opportunity or lesiure; and he that has little business shall become wise. . . . They (the carpenter, the smith and the potter) shall not be sought for in public counsel, nor sit high in the congregation; they shall not sit on the judges' seat, nor understand the sentence of judgement; they cannot declare justice and judgement; and they shall not be found where parables are spoken. But they will maintain the state of the world, and all their desire is in the work of their craft.

We are beginning to find out in Britain that we are paying dearly for such opinions. It would be premature to say that the prejudice no longer exists.

Further education in technical colleges in general is still part-time education and invariably voluntary. Day release is far from universal and in 1962-1963 only about 28 per cent of boys and 8 per cent of girls under the age of 18 and in full time employment received it. The fact that these figures showed no increase over the previous eight years indicated that some form of compulsion was needed. This was provided through the financial aspect of the Industrial Training Act but it is too early to tell how effective this will be. That it will still leave many youngsters without any form of further education is certain.

In spite of much that has been done, serious criticisms remain. There is unevenness in the provision of day release, and in particular there is a strong disinclination on the part of business firms and banks to allow time off for their employees. There is the rigidity in the whole system of technical education which often leads to out-of-date syllabuses that do not keep up with rapid technological change, nor do they prepare students for technological changes subsequent to their completion of training. There are the very high failure rates that go with part-time and evening study. As the Crowther report, which called the whole section of technical education 'neglected educational territory', put it: 'No youth or girl under the age of eighteen should be expected to follow a course of education that relies entirely on evening classes'. An intensely sympathetic, yet sad account of how the present system affects an individual college and its students was given by Lady Venables in her recent book *The Young Worker at College* and no one who has read it can feel contented.

International Comparison

It is clear that there must be a proper balance between training, which is both more specialised and more practical, and education, which is more general and more theoretical, and that the two must be closely integrated. While the French *Lycée Technique*, the German *Ingenieurschule* and the Dutch Higher Technical School all provide the educational part on a full-time basis, most British schemes rely on a one day week release from work. Neither of these systems seems to provide a suitable basis for genuine integration of training and education, and the recent British experiment in block release and sandwich courses may in many instances provide the solution, provided that training and education are properly integrated. What is quite clear is that the old British system of day release is totally inadequate, and that Britain can learn much from the continental full-time schools. Finally, while it is educationally permissible to provide evening classes for strictly voluntary activities, they should never form part of a formal course of instruction in industrial training and associated further education for young people.

There must be compulsion on employers to provide technician training and to release trainees for adequate periods in technical colleges. It is doubtful whether the levy/grant system introduced in the United Kingdom is adequate for this purpose. There must also be control of the industrial training through external examination of the trainees. The system, unique to the United Kingdom, by which apprentices can fulfil all the conditions of their apprenticeship without any form of examination, should be abolished.

One of the essential features of any system of technical education must be to offer a 'second chance' into higher education. For this it is necessary to provide comprehensive secondary education with a unified programme of study, as has recently happened in Britain, Sweden and Italy and is soon to happen in the Netherlands, as well as a system of technical education which can lead to university for those who have dropped out of full-time education between the ages of 14 and 18. With all its failings, the British system seems to be rather better than the German, where decisions, once made, are difficult to reverse. The British system of higher education is of course well known to be outstanding in Europe in attracting students of working class origin. Further, while the German system, for instance, is immensely more efficient than the British in producing technicians, it lacks the flexibility that is the good side of the rather anarchic British situation, and which enables British technical colleges to suit courses to both the abilities and the interests of the students. One ought to try to combine the best of both.

We have dealt at length with the inadequacies of the British system of commercial training, and have referred to the recommendations of the Central Training Council's report which would bring commercial practice into line with industrial practice. This is a pattern followed by several continental countries, particularly Germany and Denmark. The first step towards a sound system, that of providing suitable courses in the colleges, is now being taken in Britain. It is to be hoped that the second step, the adequate provision of training within commerce, will follow soon, as a result of the Industrial Training Act.

Future Developments

It is clear that there will have to be substantial changes in the organisation of apprentice and technician training. With the school leaving age rising to 16 and more students staying at school voluntarily to 17 or 18, it will be necessary to vary the period of training and to adjust both the level and the methods of instruction to this more mature entry. The question will have to be resolved as to how much vocational training should take place in the secondary stage of full-time education, either as part of the comprehensive school or, as in the Netherlands, in the separate Lower Technical School.

The voluntary principle in technician training and education will have to go. Not only shall we otherwise not get enough trained personnel, but 'the voluntary principle is inapplicable in education, because it is precisely those who need education most that are least capable of demanding it, desiring it, or even conceiving it'. This means that an integrated period of education and training must eventually be compulsory for all those who do not continue in full-time schooling beyond the school leaving age. During this period, young people must be

considered to be primarily in training and only secondarily in employment. Not only must they, in a rapidly changing situation, learn basic technology rather than the immediate skills of the job, but they must continue with non-vocational education, if they are to become the responsible citizens of tomorrow.

Perhaps our greatest waste at present results from our neglect in the training of girls. We must accept as normal that girls will marry and have babies in their late teens and early twenties and we must organise their education so as to prepare them for the brief employment period before marriage, the period of child bearing and child raising, and finally for renewed employment, when the children are grown up. At the same time we must provide equally for those women who remain in employment throughout.

When we look further ahead, the most obvious fact is the increasingly rapid change of technology. Surprisingly, automation has not so far seriously affected the non-manual worker. But the effect of automation cannot be long delayed, and this brings us to the problem of re-training. In the future we shall not be able to educate youngsters on the clockwork principle, by which we wind them up when they are young and hope that the spring will last them a life-time. However good the initial training—and it will have to be good if it is to last even half a life-time—re-training will become essential for almost everyone. So far, re-training programmes have concerned themselves almost entirely with the problem of those who have become unemployed through technological change, and these have been mainly skilled workers. This is largely because at that level redundant employees become unemployed. At a higher level, long term contracts may protect an employee from dismissal, and he may then either continue at a post for which he is no longer fitted or else be transferred to another post within the organisation. In either case, both he and the organisation are likely to suffer, unless he is re-trained.

Methods of training and re-training will change radically. Programmed learning and closed circuit television are already in many instances aiding the teacher, changing his role and perhaps even displacing him. In fact, it is quite essential that developments in educational technology should lead to the partial replacement of the teacher by the machine, since we shall simply not have enough teachers for the vast programmes of education and training that are envisaged. In due course, no doubt the computer will become the tutor and it will be the educationist's task to programme the computer.

To conclude, the situation in all European countries is in a state of flux and much research is going on which it is hoped will lead to substantial improvements on the present methods and approaches to technician training. Let the last word be with a recent OECD report:

> It is generally concluded that the output of the educational systems of the majority of the Member countries will fail to satisfy the needs of an expanding and largely technologically-based economic development, in spite of priorities currently accorded to the industrial and technical sectors. Additional sources of technician training must be sought, primarily in industry: the education-industry relationship thus becomes a critical issue. In particular, a more enlightened and energetic attitude within industry is required if there is to be a rational utilisation of available skills and the possibility of future skills.

In Response To . . .

Two Years Plus One

Mr S. A. Morley of the Nottingham College of Education writes: Mr George Taylor (*Trends* No. 10) is critical of the Plowden report's recommendation that entrants to colleges of education should be required to have an O-level pass in mathematics. So he blames the colleges for it, accuses them of evading their responsibility for improving the standards of their students in mathematics, and begrudges them the mathematics staff to achieve it.

The ATCDE Mathematics Section evidence to the Plowden committee did not include this suggestion. College lecturers are well aware that a pass in O-level maths is not by any means the only criterion for later successful teaching of primary school mathematics. We did point out that only 55% of women entrants to the colleges as a whole have an O-level maths qualification, and gave the evidence of a more detailed survey that 15% of those who did not, dropped mathematics before the fifth form and another 10% took some mathematics in the fifth form but not the examination. Together with the poor attitudes to mathematics which often accompany low achievement this sets limits to what the colleges can achieve.

It is not, as Mr Taylor carpingly states, a question of the colleges blaming the schools, it is a fact that the power to improve standards does not lie solely with the colleges. This, to their credit, the Plowden committee recognised, and no doubt they also had in mind the many women who teach top juniors as well as those who teach infants.

At the request of schools we made some suggestions about the kind of courses we thought might be helpful (*General Courses in Mathematics in Sixth Forms*—ATCDE 151 Gower Street, W.1.—2s.) and have been glad at the number of schools seeking to provide them in spite of staffing difficulties.

George Taylor writes:

If the Plowden committee is correct in asserting that all primary school teachers need to be numerate—and no one who is aware of developments in primary schools could dissent—then colleges have a duty to ensure that teachers entering the schools are able to play their full part in these developments.

That college entrants lack an O-level pass in mathematics and have acquired poor attitudes towards the subject cannot be advanced as valid reasons for the inadequate preparation of students. Crash courses in modern mathematics and in the promotion of some understanding of mathematical concepts—a very different matter from traditional O-level mathematics—are not only feasible but also essential.

For suggestions as to where time can be found for crash courses, reference may be made to J. D. Koerner's thoughtful and critical survey of teacher training in his recently published book *Reform in Education.*

History of Education

Malcolm Seabourne, Senior Lecturer in Education, University of Leicester writes:

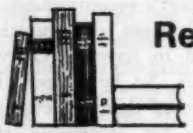
David Hopkinson's article *Teachers and the History of Education* in the last issue of *Trends* drew attention to an aspect of education which has received too little notice in recent years. He rightly pointed out that the history of education has long formed a part of teacher-training courses, but equally that it must justify its continued existence by contemporary criteria. Moreover, it would appear that arguments based on the general value of historical understanding are not sufficient in themselves to justify the provision of courses in educational history in colleges and departments of education: their specific content is all-important, for they must relate directly to the day-to-day work of the teacher. Taken to its logical conclusion (as it was by Mr Hopkinson) we reach the view that 'history of education is not primarily the history of educational policy or administration but the history of teaching.'

Now it is certainly time that the history of education as taught in colleges and university departments has traditionally dealt with policy and administration, and

all too often in a manner which has been characterized as 'the grinding out of Acts and facts.' But there is clear evidence that such an approach (where it still exists) is being ousted in favour of a view of educational history as a branch of social history, with a much greater stress on economic and social factors. There is also evidence of a broadening of interests among teachers of the subject in colleges and departments. A History of Education Society to further the study of the subject-matter and the methodology of the subject by means of conferences and meetings has recently been formed. The Secretary of the Society is Mr Ian Taylor of St John's College, York. A bulletin is issued to members.

It is too early to suggest that any consensus view of what should constitute the study of the history of education has emerged, and it could well be argued that uniformity, even if attainable, would probably be undesirable. Nevertheless, the reappraisal now being undertaken is certainly overdue and Mr Hopkinson's proposed 'history of teaching' is attractive. We know all too little about what children were actually taught and what precisely teachers have done (and do) in their classrooms. This need not be narrow, over-specialised study which it may at first sight appear. Certainly one hopes that, in the movement towards curriculum reform now gathering momentum in this country, the historical dimension (which at present it seems notably to lack) will be provided. So long as the relationship of pupil and teacher is seen as only one aspect of the infinitely complex relationship between the worlds of the child and of the adult, much fruitful work could be done.

David Hopkinson writes:
I agree with all that Mr Seabourne says and believe that the History of Education Society deserves the widest support from teachers and administrators. It has been pointed out to me by another correspondent that many teachers will be concerned with curriculum development projects and with local and even national educational policy. I am sure that studies in the history of education should deepen the students understanding of the role of education in contemporary society. This emphasises the importance of collaboration between the historian and the sociologist in initial and subsequent in-service training.



Reviews

Looking forward to the Seventies
by Peter Bander (ed.)
Colin Smythe 20s.

The publishers and the editor are to be congratulated on presenting at a modest price a collection of essays by twenty-six contributors who include some of the most distinguished names in education. Butler is here and so are Robbins and Newsom; Plowden is not but Blackie is and with him four other HMI, three of them still serving. Archbishop Beck and Kathleen Bliss are among those who speak for the voluntary schools. Kenneth Adam and Postgate deal with educational broadcasting. Both Jameses are here (he of Rusholme and he of *Times Ed.*) and the Head Master of Eton. Music is dealt with by Mayer and Art by Herbert Read, appearing in print perhaps for the last time. This is a massive editorial achievement.

But the sub-title, 'A Blueprint for Education', is a minor disaster. A reader who tries to project the educational machinery of the seventies may be sadly perplexed. What, after reading Chenevix-Trench, James of Rusholme, Newsom, Gould and Donnison, is he to make of the future of secondary education? Miss Wingate's expectations on the future government of colleges of education are not those of Lord Robbins, although their ultimate hopes are the same. Twenty-six different hands in truth are unlikely to produce a workable blueprint on anything, and this claim should not have been made.

More serious is the incompleteness of the drawing. One conspicuous absentee is Crowther; if he was not available, there are many others who could have dealt with the Technical College and the Polytechnics. The only element in further educa-

tion which is given an essay to itself is the Youth Service, from Roy Herbert. Even Robbins refers only indirectly to polytechnics in deploring the miscalled binary system. Herbert Read fires a shot at the Dip. A.D. and Parkinson's interesting essay on 'The Community' carries a substantial section on liberal studies in technical colleges. Otherwise technical education in all its ranges is very wrongly ignored. So is adult education, except indirectly in the two essays on educational broadcasting in Parkinson's essay and in a pertinent paragraph in Dr Bliss's. Nursery education has no separate essay. The view of education reflected here is a far cry from that of the 1944 Act, once described as the first Education Act in England which saw education as a continuing process from the cradle to the grave.

This collection is however very well worth reading if it is taken for what it is, an assembly of essays by intelligent and well-informed people writing about what most interests them in education. Chenevix-Trench puts up an exhilarating fight for the public school; Lord James does even more skilfully for the grammar school, basing his case on a blandly telling quotation from Anthony Crosland. Monica Wingate is particularly good on the training of teachers and brings out clearly the remarkable and little-recognised expansion there has been in the last ten years concurrently with the lengthening of the college course and the introduction of the B.Ed. degree. Lumsden is lucid and pointed on the education of the handicapped. Not all the major stars are at their brightest but Sir John Newsom produces a pleasant flame. He does however perpetuate one old misconception, that a comprehensive organisation of secondary education 'doesn't mean an end to selection'. (Ministry of Education Pamphlet No. 1, *The Nation's Schools: Their Plan and Purpose*, said the same thing and its life was short.) Selection in its crude sense is not the only way of ensuring that a secondary pupil is educated according to his age, ability and aptitude. The alternative is a process of guidance and counselling in which the pupil, with parent and teacher, is involved in the process of making decisions at various stages of his school course. Burrows is the only contributor to refer to counselling, a topic which could have deserved a separate essay. Professor Donnison is particularly good on the likely changes in secondary education, but neither he nor any other contributor deals adequately with the less able child in the normal school. Sir Ronald Gould does not; he is properly sensitive to the unrealised potential of the apparently dull and rightly recognises the increased anxiety of parents for skilled careers for their children. 'They see,' he says, 'that there is no future in manual occupations which require nothing but simple skills.' But some secondary pupils are going to take up such occupations and know that they are. What can the secondary school do for them? It is the most serious problem of our secondary schools, as Gould has acknowledged elsewhere, and the full answer is not in the Newsom Report.

The most urgent problem of secondary schools in the eyes of most contributors in this field is the postponement of specialist decisions and the broadening of sixth form curriculum. Lord James, John Newsom, Professor Donnison are all agreed on this. The other note which is struck in several of these essays is the need for expanding the in-service training of teachers; Lord James generously recognises the work of the inspectorate in this field but envisages a need on a still wider scale. About one or two of the essays there is a certain easy optimism: the Seventies will make our hopes come true. Newsom does well to remind us that the hopes and prospects of education depend on those of the economy and Parkinson, basically optimistic, points out how much we have left undone of what we undertook to do.

This collection makes lively and stimulating reading for those who want to ask questions rather than to be given the answers.

R.D.S.D.

The Scottish Educational System
by S. L. Hunter
Pergamon 35s.

Mr Hunter has written a factual outline of the Scottish educational system, accom-

panied by a well-balanced commentary. It makes its appearance at a most suitable time, because, in the words of the author, 'The winds of change which began to blow on Scottish education in the mid-1950s have never since been less than moderate in strength, and have affected virtually every aspect of the educational system. Their direction has been broadly determined by official action in the form of various reports issued between 1955 and 1965'. (p. 261)

As a digest of published material on each aspect of Scottish education this book could hardly be bettered; the treatment is thorough, with clear explanations and judicious comments by the author. Complacency is notably absent from these pages. Even when describing the impressive progress made in recent years, Mr Hunter points out that there are still some matters which might well repay consideration. On certain issues Mr Hunter makes it clear that the chief difficulties are not entirely educational.

Occasionally the author understates the changes which are taking place. There are some developments in the Scottish educational system which call for a more definite and appreciative treatment than they receive here. For example, the scheme for a Certificate of Sixth Year Studies is described, but its real significance (which certainly deserves attention) is somehow left out of the account. Similarly, the author under-estimates the vigour of the system when he writes,

'It is true that Scottish education is unlikely to regain its pre-eminence of former centuries, but there is little doubt that any decline has been halted, and perhaps some ground has been regained'. (p. 264) Scottish education surely has greater potential than such words suggest.

A commendable feature of this book is its treatment of such topics as child care, vocational guidance, special education, and welfare services. Finally, an important chapter deals with the teaching staff in Scottish education. It is odd, incidentally, that parents are hardly mentioned: have they no part in the system?

Without doubt, however, Mr Hunter is to be congratulated on having written a valuable introduction to the study of Scottish education at a most interesting stage in its development.

R.B.P.

Science Teaching Journals

Education in Chemistry
Physics Education
Biological Education

During the last four years, three new Journals have been launched specifically for science teachers; *Education in Chemistry*, published by the Royal Institute of Chemistry, *Physics Education* by the Institute of Physics and the Physical Society, and *Biological Education* by the Institute of Biology. As their titles imply, they are intended in the main for specialist teachers of the three subjects, and can be regarded therefore as supplementary to *School Science Review*, the *Journal of the Association for Science Education*, which provides a meeting ground for all who teach science at whatever level in the schools.

A glance at the contents of the issues of all three journals shows that the meeting ground they provide is for teachers in the universities, the schools, the colleges of education, and the colleges of further education. All three, to some extent, but notably the chemical journal, attempt also to inform their readers about developments abroad in the teaching of their subject.

In the main, though, the editorial policies, judged by the articles published, seem to fall under two headings. First to acquaint teachers with recent developments in their subjects, and, second to present ideas and suggestions for the teaching of the subject at school level. Thus an article on high energy nuclear physics is followed by one on stroboscopic photography. The balance differs, the biology and chemistry journals keeping close to the teacher in the laboratory or lecture room, the physics journal giving more space to contemporary topics. All include book reviews, comments on apparatus available, a list (although understandably by no means a complete one) of courses for teachers, and letters from

readers. All are attractively printed on good paper.

A good deal of space in each is occupied by articles on the Nuffield Foundation science teaching projects so that, taken in conjunction with the coverage of these projects also given by *School Science Review*, the science teaching profession should be very well informed on this subject. Undoubtedly they are good value for money.

If, however, we are to go by the 'letters to the editor', and it can certainly be argued that there is nothing better to go by, even the circulation figures, then very few teachers indeed seem to have reached the stage of meeting the confident expectation of the chairman of the editorial board of one of the journals that they would be welcomed as a medium for discussing problems and suggesting improvements in the teaching (in this particular case) of biology. There has been very little of this in any of them.

I do not doubt that the distinguished members of the editorial boards are aware that for many, perhaps most, science teachers it is not merely a question of sustaining interest in his own branch of science but rather of re-awakening it, or indeed in not a few cases of initiating it. It may be true, to quote from a recent number of one journal that ' . . . the implicit assumption of older curricular approaches, that is the 'pious hope' that the continued contact with a body of scientific information will bring about . . . an understanding of science is untenable'—although I think perhaps we ought not to be carried away, since it is evident that the older curricular approaches do seem to have produced a fair number of people, of whom the author of the above would no doubt consider himself to be one, who do understand at least some science, including 'the nature of the scientific processes'—but we must remember that more potential understanders have been exposed to more scientific information in the universities than ever in the schools. For those who have become teachers and who, unlike the teachers of most other subjects, are not able to be also practitioners of their science, there is, not surprisingly, a need to generate interest beyond the confines of an examination syllabus. Or, for that matter, a 'Nuffield' syllabus. Given that, few teachers would need for example to be told quite so repetitively how good the 'Nuffield' materials are, they would be perfectly capable of deciding for themselves. Many, of course, are now, but it is just a suggestion that more articles might concern themselves with helping teachers to capture or recapture interest in their subject, and fewer with advocating the claims of any particular method of teaching.

I hope all science teachers, and not only those in schools, and all administrators and others whose function it is to make it possible for Science teachers to do their job effectively, will read these journals, and I do hope they will read each others', that more will contribute to them both by way of articles but more particularly by writing to the editors.

One personal request. Only the biologists tell us more than the names of the members of the editorial board and even then there are inconsistencies. It is just as important that we should know what post 'X' holds at 'Y' school or college as that we should know what 'A' does at 'B' University. The physicists gives us names and academic titles only, whilst the chemists recognise only honours and awards. I wonder if there are enough school teachers on any of them?

N.B.

The New Polytechnics
By Eric E. Robinson
Cornmarket Press 30*s*.

This is a back-lash book. Mr Robinson is smarting under the insults that have been heaped on that sector of the educational system in which he works. He retaliates on the universities and on DES. Happily, in spite of the rhetorical exhortation and the clichés (we meet 'ivory towers' 'bloodier battles' and 'commanding heights' in one short paragraph of his introduction) Mr Robinson's experience, insight and critical powers are not entirely wasted on invective. He has shrewd and important things to say

about higher education and many of his views on the future development of the Polytechnics are worth close attention.

The merits of the book lie in its vigour, its creative intentions and the frequency with which it scores a good point. Mr Robinson draws attention to the fact that a substantial number of 'advanced' students are now getting 'higher' education on a full-time or part-time basis in colleges, variously named, but alike in being within the further education system administered by LEAs. This fact must be apparent to all who look at the statistics but is ignored by many who write about higher education. Too frequently it is assumed that the universities alone provide this form of education in this country. Thus Mr A. D. C. Peterson in a book published this year writes—'if the school leaving age has reached seventeen in the early 1980s, most of what we now know as further education will have been absorbed in secondary education.' Thus, what he has to say about our present system of higher education is subsumed in the 'question of what and how university students learn.' In fact this is probably less than half our future. At least as important is what the students in the non-university sector of post-school education are learning. It is certain that there will be more such students and that they will have more to learn; it can be predicted that even if the school leaving age reaches 17, the majority of them will be getting their extended education outside the universities. Although the policy for higher education laid down by Mr Crosland in 1965 is sure to undergo modification, the vital question remains—how will the polytechnics area and local colleges develop in the next few years?

Mr Robinson's views on this question present, at first glance, an impression of grumbles, warnings and gloomy prognostications. But underneath one discerns a basic, fighting optimism. He is like a confident but touchy field commander, unable to contemplate defeat, but insistently calling on the government and people at home to recognise that he is short of supplies, out-numbered and outgunned by the enemy.

On the surface one would suppose that the enemy for Mr Robinson is the university. But again it becomes clear on closer study of his book that the profounder source of his discontent is the social and economic system within which education takes place. This is where one is left with the feeling that Mr Robinson has got too far away from the students and the lecture room. He has immersed himself in the politics of education and become obsessed by them. The book that is needed but has not yet been written is a genuine academic study of the teaching situation inside the colleges that are doing advanced work. This would compliment Lady Venable's valuable study of the local college from the inside.

Mr Robinson is right to emphasise that an appreciation of vocational discipline is as important (and perhaps more easily communicable to many students) as appreciation of academic discipline. But his attitude towards academic specialisation and the old liberal aims of higher education seems frequently confused and inconsistent. He makes, for instance, sound criticisms of the baleful influence of some traditional university concepts and practices on other areas of higher education and of preparation for higher education. His demands, however, are not merely for a reduction of this influence, but for a curtailment of the freedom of universities and a decline in their material standards. Yet, in the end, he suggests that we should extend to all institutions of higher education just that flexibility and freedom from control, the reduction of which he has earlier demanded when criticising the universities.

If Mr Robinson had been content to discuss only the new polytechnics and what they can achieve outside and apart from the traditional courses and practices of British universities, he could have produced a more acceptable and no less vigorous and hard-hitting book. It is of course true that the polytechnics cannot be isolated, but their success will depend less on what happens in universities than on what happens in secondary schools and in the rest of further education.